







# NEW YORK ZOOLOGICAL SOCIETY



1895-1945

FIFTIETH ANNUAL REPORT

FOR THE YEAR 1945



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# MEMBERSHIP IN THE NEW YORK ZOOLOGICAL SOCIETY

THE New York Zoological Society was founded in 1895 for the "instruction and recreation of the people" through the establishment of a Zoological Park, for the promotion of zoology through exhibition of collections, publication, research and exploration, and for the conservation of animal life of the world. Since 1899 the Zoological Society has directed the New York Zoological Park and in 1902 it was entrusted with the management of the New York Aquarium.

Membership is actively invited of all persons who are interested in the objects of the Society and desire to contribute toward its support.

Annual Membership is \$10. This entitles the holder to a Member's card and 10 guest tickets of admission to the Zoological Park on pay days; a copy of the Annual Report; a subscription to ANIMAL KINGDOM, the bi-monthly publication of the Society; privileges of the Library and Members' Lounge in the Administration Building and to attend all open meetings of the Society. Tickets to all sections of the Zoological Park for which an admission charge is made are available, free, to Members upon application at the Administration Building in person. Members will be taken on "behind the scenes" tours of the Zoological Park and Aquarium, without charge, on application, and are entitled to 20% discount on all publications of the Society.

Annual Members may become Life Members by the payment of \$200. Other classes of membership are: Patron, \$1,000; Associate Founder, \$2,500; Founder, \$5,000; Founder in Perpetuity, \$10,000; Benefactor, \$25,000.

Applications for membership may be submitted to any officer of the Society or to the Society's general office at 630 Fifth avenue, New York 20, N. Y.

# FORM OF BEQUEST

I do hereby give and bequeath to the "New York Zoological Societof the City of New York	-

### REPORT OF THE PRESIDENT

THE ending of the war on August 14 brought into sharp focus two major facts about our institution. First, it had been able not only to maintain but to expand its activities during the long three and one-half war years; second, the period of making plans for the future was at an end and the days of putting into effect the extensive program, so painstakingly prepared, were at hand. The report of the Membership Chairman immediately following admirably presents the case of the Society, past and future.

Supplementing the departmental reports, certain developments during the past year call for special comment.

# Zoological Park

The creation of a new department in the Zoological Park is an event of the first magnitude, for the fields in which the Zoological Society operates departmentally—Mammals, Birds, Reptiles, Aquatic Life, Education, Tropical Research and Publication—have long since been fixed. But we have come to realize that insects, because of their multiplicity, interest and importance to human beings, deserve far more attention than we had ever been able to give them. In the past year the time seemed ripe for the creation of a Department of Insects, and we are happy to record the appointment of Mr. Brayton Eddy as its first curator.

The innovation was an immediate success in its relations with the public. The Department has become a clearing house of information about insects in the garden, in homes, in the fields. Coincidentally with his appointment as Curator of Insects, Mr. Eddy became Acting Curator of Reptiles, and was able to establish a few exhibits of living insects in the Reptile House. We are now planning, with the architects, a special type of building for the year-round exhibition of insect life. Construction, naturally, is some time in the future and is contingent upon funds becoming available.

It is good to be able to report that despite building and construction handicaps, a number of real improvements in exhibitions were made in 1945—specifically the creation of a "Jewel Room" for the display of tropical birds, a new, moated exhibit area for Otters, and (partly pure education, partly exhibition, through its informative murals) the opening of the Question House.

There was real satisfaction during the year in the fact that we were consulted frequently regarding new techniques in animal exhibition by representatives of zoological parks in other cities. The municipality of San Francisco voted a special fund for a report by us as to the management and growth program of its Zoological Park. It has been a great pleasure to us to share our ideas fully and unreservedly with representatives of other institutions.

#### Conservation

As previously indicated, our policy in regard to work in Conservation has in recent years undergone a considerable change. In the early days of the Society, activities were aimed solely at the protection of wildlife itself. There is growing consciousness of the fact that the protection of wildlife is inter-related with the protection of forests, water sources and other natural elements. Consequently, the Society's work in this field is inevitably assuming a broader aspect, with purposes more far-reaching than those previously envisioned.

During the year the plans for a joint enterprise with the Conservation Department of the State of New York were completed. There is every prospect that the Legislature at Albany during its forthcoming session will pass legislation authorizing the necessary funds from the State treasury for the creation of a Conservation Exhibit to be established on twelve acres of land in the northeastern corner of the Park.

In October final arrangements were completed for the Wildlife and Conservation project in Jackson Hole, Wyoming, in which the Society will take an active leadership. This project will provide for the establishment of a Wildlife Park in which Moose, Elk, Deer, Antelope and Bison can be seen in their natural surroundings. An information center will be established nearby where visitors can gain knowledge concerning the problems of wildlife management, the need for the preservation of natural areas and other related matters. This splendid opportunity is made possible by Mr. John D. Rockefeller, Jr., who is making available some of the lands previously acquired by him in this area and by the farsightedness and support of one of our own trustees, Mr. Laurance S. Rockefeller.

Another project in the far West in which the Society plans to take an active part, has as its purpose the preservation of the last remaining herd of Roosevelt Elk in California. We are being joined in this effort by the National Audubon Society, the American Wildlife Institute and the Boone & Crockett Club. Through the constructive attitude of the Sage Land and Lumber Company a large and primeval stand of redwoods, situated in Humboldt County, will be acquired at a price far below its value. This forest is adjoined by open prairie land. Negotiations are now under way with the California State Park Commission looking toward the establishment of this forest, with adjoining open land, as a permanent refuge for these splendid animals. Mr. DeForest Grant, another of the Society's trustees, is generously planning to aid this project and the reservation will be known as the Madison Grant Elk Refuge, in memory of one of the Society's founders and former presidents.

A considerable number of other activities have been undertaken, including communications to the War Department which resulted in the removal of United States military operations from the Camargue Reserve and the Fontainebleau Forest in France; work with educational institutions in regard to the integration of conservation education into the general curricula; and continuing financial support from the Conservation Fund to other agencies.

#### Scientific Work

The activities of the staff in research have been more diversified because of the demands placed upon us by various governmental war agencies. It is a matter of substantial gratification that the Society has been able to contribute in so many ways to the war effort through biological research. A number of staff members, especially Mr. Coates, Dr. Goss, Dr. Nigrelli and Dr. Gordon, have made especial contributions along these lines.

The Society will not be able to realize fully on its opportunities in the field of biological research until it is in a financial position to establish a properly administered and equipped Research Center, referred to in last year's report. This will be one of the principal objectives in the campaign for additional funds which will be launched during the coming year.

#### Educational Activities

A review of the report of the Department of Education will indicate that services within the Zoological Park as well as to educational institutions in the City and elsewhere have been actively maintained.

In the Spring of the year an innovation, known as the Question House, was opened in the Zoological Park. Even though we have long

realized that the public comes to the Zoological Park not only to see but to learn, we were scarcely prepared for the immediate and extraordinary success of this new unit. It further substantiates the conviction that the Society should do far more than it is now equipped to do in the field of popular education. Here again, the broadening of our activities depends entirely on the availability of adequate personnel and resources.

#### Finances

At its meeting of October 3, 1945, the Board of Trustees appropriated the sum of \$250,000 to be used in 1946 for the Zoological Park post-war program, provided that the City of New York appropriates an equivalent sum. Assuming these funds become available, and building conditions permit, the new units to be constructed will be a new Primate House, a Tiger Exhibit and a new Central Restaurant.

Simultaneously with the increases in salaries provided by the City to Zoological Park employees, the Society provided equivalent increases to employees directly employed by it. These payments, together with the higher costs of materials used in publications and for other miscellaneous purposes, have increased the operating expenses of the Society. Despite this fact, the year was again ended with expenses within earned income.

As indicated in the financial statements appearing elsewhere in this report, it has been possible to build up certain reserve funds in order to meet the cost of increased activities in the post-war period. A report of donations received during the year appears on pages 51 and 52. The appreciation of the Society is most warmly and gratefully extended to all who have contributed.

The program for the future is extensive and will require substantial funds for its accomplishment. A projection of future financial needs has been prepared and will be made available to persons interested in helping the Society's growth and development so that it may be able to meet the many extraordinary opportunities that lie before it.

# Membership

It was decided early in the year that the time was appropriate for the building up of the membership of the Society. Mr. Donald Carlisle became associated with our organization in March and became Chairman of the Membership Committee. Excellent results have been obtained, the roll of Annual memberships having increased by 536 new members, or 62%. In addition, 26 new Life members have joined the Society. An interesting

aspect of this growth is found in the fact that a very considerable percentage of new members come from outside the metropolitan area—in fact from all over the United States, including not a few from foreign countries.

# Our Organization in the War

The record of war service on the part of the Society's trustees and employees is one of which we can be very proud. As this is written, the majority who served so well in all branches of the service have returned. Some of the Park employees were seriously wounded and even incapacitated for certain types of active physical work but provision for useful and effective work in our organization has been gladly and gratefully provided. Two members of our organization gave their lives in the service of their country—Charles Merritts, Jr., one of our bird keepers, a paratrooper in the 501st Airborne Division, wounded twice in the early invasions of Europe, lost his life in Luxembourg; Charles Masterson, of the Facilities Department, who served with a tank destroyer unit, was killed in the Battle of the Bulge in Germany.

#### The Future

As the year ends active preparations are being made for the Fiftieth Anniversary meeting of the members of the Society, to be held on January 8. This is indeed a landmark in the history of the Society. The occasion represents not only the closing of the first half-century of public service but will signalize the opening of a period which it is hoped may prove one of resurgence and far-reaching development.

# REPORT OF THE MEMBERSHIP CHAIRMAN

DONALD T. CARLISLE, Chairman

AT THE 50th Anniversary meeting of the Zoological Society, President Osborn announced the Society's plans for the future—completing the modernization of the Park, including the African Plains, and the establishment of four other continental panoramas; our share in the construction of a new Aquarium fitting for the great City of New York; increases of the Society's work in behalf of education, in pure science and in the imperative cause of conservation. Of equal importance with these goals is the liberalizing of our Pension Plan for employees and the implementation of a full program of employee protection.

It will obviously require a sharp increase in the Society's resources to accomplish any of these desirable goals. The current financial position of the Society is sound. However, it is apparent to all who are in close association with the problem that the New York Zoological Society will require a larger total of new money than it has ever sought in the past if our future needs are to be met. Our best estimates—which in these days cannot be as closely made as one would wish—indicate that the Society requires between five and six million dollars. Even with these needed funds in hand, the Society would still be the least heavily endowed of other similar cultural institutions in the city. At their greatest, our requirements would therefore seem to be modest.

It is appropriate that at this time a report in explanation of our financial needs shall be given to the membership.

To understand the immediate problem before the Society it is perhaps desirable to review the past and to recall the relationships existing these fifty years between the Society and the City of New York.

Our Society was chartered in 1896 for the purposes of administrating the New York Zoological Park (Bronx Zoo) and of lending a strong support to wild life conservation through the sponsorship of proper legislation, of extending general education in the field of biology, and of the pursuit of research in the biological sciences. The Park was opened in 1899, and in 1902 the City requested the Society to undertake the management of the New York Aquarium, then and until 1940 situated at the Battery.

In our original agreement with the City, it became the Society's obligation to raise a fund of \$250,000 for the construction of the original Park buildings and the stock of animal exhibits. It was the City's obligation to supply the land for the Park, to build roads, paths, sewers, to furnish utilities and to aid in maintenance costs including the cost of regular Park labor. Since, according to this agreement, it was the Society's continuing responsibility to maintain the animal collections, we were given the administration of all profit-bearing facilities that might be developed—food, refreshments, animal rides, photographs, publications. Any profits resulting from these enterprises were restricted to two purposes—animal purchases and improvements within the Park.

It is hence apparent that so far as our relation with the City of New York is concerned, the Society has no responsibility beyond that of supplying a sound management for the Park and the Aquarium, and a maintenance of representative animal collections judged entirely on the basis of their public appeal. The Society's work for conservation, our programs in education and in scientific research, are no direct concern of the municipality. No support for them has ever come from the City, and their progress has always been financed entirely out of the Society's independent resources.

It is perhaps of further interest, particularly to our newer members, that the Society is a distinct entity. It works officially with the Commissioner of Parks of the City. In this connection our sole function is to act as the City's managers of the Park and the Aquarium. We have no connection whatsoever with the Central Park Zoo nor with any of the City's other parks or museums, although we enjoy the most cordial of relationships with them all. At the creation of the new Conservation Demonstration unit, we will enter an agreement both with the New York State Department of Conservation and the City, since it will be situated on City land.

These facts of the past and present are important in your judgment of our needs for the future.

# Our Growth Through the Years

The New York Zoological Society was opened to the public in November, 1899. Since that date more than 96,000,000 people have entered our gates. In the years 1902-1940, the period of our management of the Aquarium at the Battery, attendance totaled more than

84,000,000. The sum of attendance at both places—more than 180,000,000 people—is equivalent to two-thirds of the population of the Western Hemisphere.

Before the war the Park's attendance has gone well over 3,000,000 in a single year. In 1945 with gasoline restrictions in force until the fall, attendance was 2,224,523. This exceeds by more than 25% the attendance of the next most popular cultural institution in New York.

What is the significance of this fact? It means that our Society operates by far the most popular institution of its kind not only in New York, but in the country as a whole—perhaps in the world today. This fact of attendance leadership is important. With the war over and when the new Aquarium is in operation, it is probable that our Society will be in direct contact with more than 5,000,000 people yearly.

Our contact is not face to face alone. A constant flood of letters and telephone calls comes to our staff of curators, veterinarian and laboratory technicians. Magazine editors, writers, artists, radio commentators, and many from the world of Science call on us regularly for information or to check their data. It may be said without boastfulness that our Society today is one of the great clearing-houses for information on all subjects having to do with the animal kingdom. Our Question House in its first five months of operation was visited by some 44,000 people, with direct queries to be answered.

The fund originally raised to build and stock the Park was \$250,000. As time passed and our work grew, money was required for other purposes. A special fund for the purchase of animals was the first created after the basic Park Improvement Fund. Then, as the Society's work increased, a library was needed. When the Administration Building was completed money was raised for the commissioning of artists to paint the Society's great collection of animal subjects. A Pension Fund was given by Andrew Carnegie, and various specific gifts were made for research, both here at the Park, at the Aquarium and in the field. The larger number of gifts and the largest gifts to the Society, however, have been made to the General Fund, now having a value slightly in excess of \$4,000,000. It is the unrestricted income from this fund which supports our Society. It is only out of the proceeds from it that we are able to support our administrative staff, our staff of curators and scientists, the greater part of our present research and our programs of publication for scientific, educational and conservation purposes. It supports to a large extent our membership activities. It pays the pension benefits of Society employees.

The General Fund of the Zoological Society is far smaller than that of most comparable institutions. In the cases of the two next most popular cultural foundations in New York, one has income-bearing funds more than fifteen times as great as ours, the other nearly four times as large—yet we serve an attendance more than 25% greater than either of them. It would in fact be difficult to find an institution which gives service to so many people on such a low working income as we have.

Consider these figures quoted in a report by the J. G. White Engineering Company under date of November 25, 1939.

		Attendance	
		Park	Aquarium
Vanley Avanage 1024 1020			2,345,000 2,370,000
	Attendance 1938	Cost of Operation 1938	Unit Cost per Attendance 1938
Zoological Park	2,716,924 2,059,115	\$ 338,803.00 92,387.00	\$ .125 .046
Metropolitan Museum of Art	1,345,837 1,480,388	1,973,766.36 1,557,147.32	1.47 1.05
Philadelphia Zoological Park Brooklyn Botanic Garden National Zoological Park	316,355 1,628,000 3,127,650	138,735.44 411,471.38 225,000.00	.44 .25

Our Society has a notable record for economical operation. Our management of the Aquarium in 1938 cost less per patron than the comparable amount for any other institution reported. The Zoological Park was third on the list—bettered only by the operation of the Aquarium and the National Zoological Park in Washington. Since, so far as we know, the Washington Zoo does not have turn-stiles, we assume that their attendance figure may have been estimated. In any case, our Society seems to make its dollars go much further than the average.

The last of the major animal buildings of the Park to be completed was the Elephant House—opened to the public in 1908. From 1908 to 1940 such gifts as we received were made for special purposes of the Society's work or to the General Fund. There was no new construction of importance. In 1940, through special gift, the Society began a modernization program, building the first two units of the African Plains—Lion Island and the Antelope enclosure, with their moats, corral and supplementary buildings. In the following year the Pandas' enclosure was completed for the reception of the animals just before Pearl Harbor.

At this same time we built the Children's Zoo, the Farm-in-the-Zoo

and the new Animal Track, and the west wall of the Lion House was fitted to receive the interim Aquarium when the Battery was closed to us in 1940.

The intervention of the war cut our modernization program to a minimum. The habitat flight-cages and the Jewel Room of the Bird House, the new Otter Pool, the Question House and some minor modification of the Primate and Reptile Houses are the only new or revised exhibition units that have been constructed. With the exception of the gift for African Plains, and the Farm-in-the-Zoo—supplied by the City under W.P.A.—the cost of this new construction has come out of the resources of the Society.

# The Moment to Expand Has Come

Some six years ago, we began an inventory of our future needs. In physical plant the requirements were obvious. All exhibition buildings of the Park had been built prior to 1908. While they had been maintained in excellent condition, a large number of them needed alteration, renovation or expansion to fit them for future use. It was obvious that as soon as possible after the war new quarters should be built for the Aquarium, replacing the famous structure at the Battery.

It had been made possible through a special gift for us to begin the modernization of the Park in 1940 with the present African Plains area. At the time it seemed unfortunate that this area could not be developed beyond the Lion Island and the Antelope enclosure, but the interruption of the war years gave us certain advantages. In this interval we have been able to develop plans based on experience not only for the completion of the African Plains, but for the other great Continental areas we should build later—Eurasia, Australia, North and South America. We have plans for a fine new Primate House, an Insect House, and the conversion or enlargement of many of the older Park buildings to add to their interest, beauty and usefulness.

There is also the desirability of a new Aquarium which by its scope, its drama and its educational value, can quickly establish itself as one of the most important marine biological centers in the world.

These plans constitute the physical work which the Society has before it. At the moment of preparing this report it is apparent that the national building crisis will prevent our undertaking major construction for an indefinite period. In the meantime, however, equally important if not even more vital work of the Society should be expanded.

We have mentioned the value of our public contact-a direct

touch with more people than has any other similar organization. This contact is for the greater part with city people—remote from nature, having little or no direct relations with the environment on which they depend.

This great body of our public constitutes a potential opportunity for teaching open to few if any other institutions.

The war's drain on our natural resources; the preoccupation of the mind of youth with atomic energy, radar, jet-propulsion and Superman; the isolation of the city dweller from his environment, are all evidence of the crying need for Conservation Education. Here on the land of the Park, face to face with more people, the Society is in the best possible position to teach Conservation "from the ground up"—not only Wildlife Protection, but Soil Saving, Reforestation and Water Control. By extension we can carry this education everywhere so that its values will be felt not only in the Bronx and Manhattan but in Binghamton and Ogdensburg, in Birmingham and Oklahoma City.

The Society must extend its contact with the educational systems of the City and the region. We must teach not only Conservation but the whole field of the biological sciences. Over 1,000 study groups now come to the Park yearly. There is a growing demand in the schools for our motion pictures. Groups of both public and private school principals and teachers have come to us with requests for help in developing a full service to schools supplementing their present work in natural science. Anyone who believes that a sound contact with the world of nature is a prerequisite to balanced personality will recognize the opportunity the Society has through our schools to help bring the world back to a saner point of view. However, the limitation of man-hours now make it necessary for us to decline many of the most valuable opportunities which come our way.

It has been previously reported to our members that a Scientific Advisory Council has been formed to guide our staff in the development of our research work on the higher levels. The range of the Society's collections, the data which have been recorded here, and our accessibility for so large a part of the important biological research workers of the country, make the Society an ideal potential center for much of the research work with animal forms that needs to be carried on. Our plans include, therefore, a large but altogether reasonable increase in research facilities and personnel.

While waiting for our chance to begin our building program, we should not cease working for these other essential if less tangible goals:

- 1. A broad program of popular education in Conservation needs.
- 2. A comprehensive program of general education in the biological sciences.
- 3. An extension and intensification of our efforts in behalf of pure research.

Means for achieving these ends can be put to work tomorrow.

#### Our Current Resources for This Work

At present earning rates, the income from our General Fund of approximately \$4,000,000 is something less than \$160,000 a year. This sum now supports our Society as it has operated during the restricted war period. It is manifestly insufficient to undertake the great work we wish to do in the future.

It is estimated that a sum of not less than \$5,500,000 will be required so that the Society may take the position it should in Research, in Education, and in Conservation, and that it may carry its share of the cost of the modernization of the Zoological Park and of the building of a new Aquarium.

This sum may at first thought seem large. However, we ask you to contrast it with the amounts sought by other cultural foundations today. Were we to secure the maximum means we need, we would still have a relatively low endowment considering the fact that our services are in greater use than those of anyone else.

The Society has always been able to depend on its good friends to support it in its hours of need. We have never made any broad appeal for public help. We hope that the soundness of our objectives and the record of our economical operations of the past will again commend themselves to the members of our own circle.

Having sincerely endeavored to discharge our duties in the past, the Zoological Society seeks the opportunity for an even more valuable future in the service of all peoples everywhere.

# THE ANIMAL DEPARTMENTS

#### MAMMALS AND BIRDS

LEE S. CRANDALL, General Curator

GRACE DAVALL, Assistant to the General Curator; August Schilling, Head Keeper of Mammals; George Scott, Head Keeper of Birds

NOTE of triumph, definitely of triumph, can be struck in this Report. As a rule, the summary of a year is a routine and even perfunctory thing; a record of the interesting and the beautiful arrivals, a note of regret at the passing of old favorites. But now we have come to the end of the most difficult period in our history, when threats to the health and safety of our charges were of almost daily occurrence, with the bulk of our collections intact. It is true that many of our specimens have become aged, since there have been few replacements since 1941. Still, our census totals for December 31, 1945, actually show a slight gain over those of the year before. Here and there, of course, gaps are beginning to appear and we look forward to the coming of another spring, which should give us opportunity to strengthen our thinning ranks. The war's end came too late for the organization of importations before the coming of winter when, traditionally, the market makes no moves. But extensive plans have been laid and wait only for warmer weather to be translated into action.

Abnormally warm weather during March and April, 1945, came as a welcome relief to our outdoor animals and to those so situated that they could readily be returned to safe shelters at night. In fact, we were often sorely tempted to make moves which could not be retracted and only the experience of the years saved us from what might have been a disaster. For late April, all of May and the early part of June brought a close semblance of the sort of weather we should have had in March. Autumn proved as strange, for while October 10 has long been established as the pivotal date for beginning moves indoors, many delicate species enjoyed their freedom until well into November. Weather matters in a Zoo!

Our Keeper forces, in both Mammal and Bird Departments, have been greatly strengthened by the return of the following men from the Armed Services: Joseph Ruf, Herbert Knobloch, Robert Hansen, Robert Montana, Michael Quinn and John Kraft. All of these men acquitted themselves well and we are proud of the service they rendered.

#### **MAMMALS**

The birth of a White-handed Gibbon on Gibbon Island, on September 10, high-lighted an eventful year in this Department. In all our experience, we have never reared an anthropoid and naturally no effort was spared to insure our first success. Early in October, parents and offspring were removed to a specially prepared home in the Primate House. Here the infant is thriving, to the delight of many thousands of our visitors.

Pressing hard for first place in interest is a Black Leopard, born on February 23. Promptly named Bagheera, this attractive cub was safely reared by Mrs. Fred Martini. At the year's end, Bagheera remains entirely tame and unafraid, traits most unusual in melanistic Leopards.

Breeding results in general were good, although, while the excellent weather of early spring was definitely helpful, weeks of cold rain that followed caused some losses of young that might otherwise have survived. In all, 84 mammals were born and of these, 63 were living on December 31. There were: 1 Agile Wallaby, 1 Wallaroo X Euro Kangaroo hybrid, 1 White-handed Gibbon, 1 Black Leopard, 3 Coyotes, 3 Raccoons, 2 Skunks, 1 Masked Palm Civet, 2 African Palm Civets, 4 Central American Agoutis, 5 Patagonian Cavies, 1 Eland, 1 White-eared Kob, 2 Nyalas, 8 Bushbuck, 1 Axis Deer, 1 Barasingha Deer, 1 Elk, 2 Fallow Deer, 5 Red Deer, 4 White-tailed Deer, 2 Sika Deer, 4 Muntjacs, 3 Aoudads, 1 Vicuña, 1 Llama and 2 Guanacos.

Only twelve purchases were made during the year, mostly homegrown animals of importance. The most notable were: a young male Chapman's Zebra, bred in the Detroit Zoological Park, a superb male Greater Kudu from the Chicago Zoological Park, a male Bactrian Camel reared in the Philadelphia Zoological Gardens and a fine breeding male of the rare Dybowski's Deer. "Jimmy," a fully adult male Black-faced Chimpanzee, grown too uncertain for his leading part in the remarkable trained troup in the St. Louis Zoological Park, was obtained in exchange for an ill-mannered pair of young White-faced Chimpanzees. Two fine young hand-reared Florida Otters have added greatly to the interest of our new Otter Exhibit.

Gifts numbered 35, among them several specimens of unusual in-

terest. These included a young Polar Bear, captured in the Arctic by Captain Bob Bartlett, a fine male Beaver presented by Mr. W. E. Sanderson of the Audubon Society and a rare Red-eared Monkey, the gift of Mr. Joseph Egan.

Fortunately, the death rate remained low, as indicated in the report of the Veterinarian. Most important was the loss of the smaller of our two Giant Pandas, which died on October 4 as the result of an intestinal impaction. Prince, father of our Tiger cubs, never a robust animal, succumbed to a chronic stomach ailment, and our fine old male Greater Kudu caught its horns in the fence of its enclosure and could not be extricated in time to save its life. "Tracy," a male Dromedary, and "Rosita," a Jaguar, were destroyed when overtaken by the infirmities of old age.

On July 7, we opened the new moated Otter Exhibit, erected on the site of the old Turkey Range. The immediate and continued popularity of this installation confirms our belief that Otters are among the very best exhibition animals. The outdoor cages at the eastern side of the Primate House, which had become unsightly, were completely overhauled and made an attractive exhibit during the summer months.

During late autumn, the Sea Lions were removed from the pool in Baird Court and when it was sufficiently dry the water area was coated with concrete paint. Its color was a very pale blue but when the pool was filled with water, invisible particles in suspension resulted in an unexpectedly delightful clear sea green, in which the swimming animals are plainly visible.

#### CENSUS OF THE MAMMAL DEPARTMENT

	December 31, 1945		
Orders		Species	Specimens
Marsupialia	Kangaroos, Opossums, etc.	10	29
Primates	Apes, Baboons and Monkeys	23	42
Carnivora	Cats, Dogs, Bears, Sealions, etc.	36	96
Edentata	Armadillos, Sloths and Ant-eaters	1	1
Rodentia	Squirrels, Marmots, Beavers, etc.	11	43
Proboscidea	Elephants	2	3
Artiodactyla	Hippopotamuses, Camels, Deer, Cattle, etc	55	220
Perissodactyla	Rhinoceroses, Horses, Tapirs, etc.	7	13
	Total	145	447

### Summary: Orders, 8; Species, 145; Specimens, 447.

#### BIRDS

Two real breeding triumphs were achieved by this Department during the year. A young Wattled Crane, hatched on May 31, was reared

in a large enclosure near the Yak House. At an early age, the youngster was taught to eat from a wooden trough. When it was brought indoors with its parents in early November, the trough came too. It is to this contrivance that we attribute the first successful breeding of this rare species.

In the newly-furbished Phipps Cage, just north of the Pheasant Aviary, the female of our pair of Rheinart's Argus Pheasants, presented to us by Mr. Esmond B. Martin in 1941, hatched and reared a single chick, which proves to be a male. Since there is no other breeding pair of this handsome species in this country, we are particularly proud of its achievement.

Importations of birds continued at low ebb but were sufficient to furnish a total of ten species new to the collection, as follows:

Tule Goose, Anser albifrons gambelli
Abyssinian Blue-winged Goose, Cyanochen cyanopterus
White-winged Pigeon, Columba maculosa albipennis
White-naped Pigeon, Columba fasciata albilinea
Golden-headed Quetzal, Pharomachrus pavoninus auriceps
Western Colombian Fruit-Crow, Pyroderus scutatus occidentalis
Purple-blue Sugar-bird, Dacnis cayana coerebicolor
Lesser Blue Grosbeak, Cyanocompsa cyanea minor
Black-and-White Seedeater, Sporophila luctuosa
Indian Rose Finch, Carpodacus erythrinus roseatus

Of these, at least two are of outstanding interest. The Golden-headed Quetzal of Colombia is a superb creature ablaze with iridescent plumage but lacking the long trains of its Central American relatives. The Western Colombian Fruit-Crow, a relative of the Umbrella Bird and the Cocksof-the-Rock, is no beauty in dingy black with pale orange throat, but fully makes up in rarity and interest.

Other arrivals of note include a pair of rare Hooded Cranes, native to eastern Asia, and a fine male Masai Ostrich. The latter's only blemish was a swelling on one leg, which yielded promptly after the removal by Dr. Goss of a two-inch splinter of wood.

Late in June, Head Keeper Scott went to the St. Louis Zoological Park to take over a collection of 21 Hummingbirds brought from California by Charles Cordier.

Losses by death were reasonably few but did cost us several important aged members of the collection. A male South American Condor, purchased as an adult in 1926 from the late Ellis S. Joseph, died November 30. A Fawn-breasted Bower-bird, which died on September 18, was the last survivor of the collection brought from New Guinea by the Society's expedition in 1929.

The opening of the former Glass Court of the Large Bird House, transformed as the Jewel Room, was the outstanding event of the year in this Department. Completed just in time for opening on Members' Day, early in June, the Jewel Room has proved the greatest attraction in what is now an attractive building. In it we have realized a long-cherished ambition, for the viewer now stands in semi-darkness, while the carefully chosen exhibits are perfectly seen in brilliant light behind clear glass. The numerous operational difficulties that always appear in such innovations have now been entirely overcome, so that birds, keepers and visitors are equally pleased.

#### CENSUS OF THE BIRD DEPARTMENT

December 31, 1945

	December 31, 194)		
Orders		Species	Specimens
Struthioniformes	Ostriches	2	2
Casuariiformes	Cassowaries and Emus	2	2
Tinamiformes	Tinamous	2	2
Sphenisciformes	Penguins	3	11
Pelecaniformes	Pelicans, Cormorants, etc.	10	17
Ciconiiformes	Herons, Ibises, Storks, Flamingos, etc.	19	51
Anseriformes	Swans, Ducks, Geese and Screamers	56	385
Falconiformes	Vultures, Hawks and Eagles	19	27
Galliformes	Quail, Pheasants, etc.	55	132
Gruiformes	Hemipodes, Cranes, Trumpeters, Rails, etc	18	36
Charadriiformes	Plovers, Sandpipers, Gulls, etc.	18	31
Columbiformes	Pigeons, Doves and Sand-grouse	42	72
Psittaciformes	Parrots, etc.	17	24
Cuculiformes	Touracos and Cuckoos	7	9
Strigiformes	Owls	11	19
Apodiformes	Hummingbirds	11	30
Coliiformes	Colies	2	5
Trogoniformes	Trogons and Quetzals	2	3
Coraciiformes	Kingfishers, Hornbills, etc.	11	11
Piciformes	Barbets, Toucans and Woodpeckers	13	1 <i>7</i>
Passeriformes	Perching Birds	203	403
	Total	523	1,289

Summary: Orders, 21; Species, 523; Specimens, 1,289.

# REPTILES AND INSECTS

Brayton Eddy, Curator Fred Taggart, Head Keeper

#### REPTILES

The end of World War II made it possible for us to start building up our collection of exotic reptiles, many of whose quarters in the Reptile House had been temporarily occupied by native species. Only four small shipments arrived before the close of the year, and they hailed from South Africa and Brazil, but there is every indication that a wide assortment of both snakes and lizards will be offered in the near future.

The two Black Cobras and the King Cobra continue in good health after eight and ten years respectively at the zoo. We also have two Cape Cobras, a fine Spitting Cobra and a Green Mamba. The Regal Python, with us since 1938, and the Rainbow Boa, with us since 1920, have been joined by a superb specimen of South American Boa, a half-grown Rock Python and an Anaconda. Eight Zonure Lizards and a young Banded Monitor have been added to the case of Gila Monsters to give it activity. The Galápagos Tortoises continue to occupy the attractive enclosure prepared for them last year.

Two snakes new to the Park are the Blotchy Tree Snake, from the Gold Coast, and the Habu from Okinawa. The latter is of particular interest because it was encountered by many members of our Armed Forces when in that part of the world. It has a large flat head, a constricted neck and exceedingly long poisonous fangs which work on the same principal as those of rattlesnakes. Our two specimens are about five feet long and dark brownish-green in pattern.

In exchange for native copperheads we received Timber Rattlesnakes, a Spiny Soft-shelled Turtle from Illinois and Red-spotted Garter Snakes from Oregon. By gift or purchase we have exhibited the deadly Coral Snake, the mythical "Hoop" Snake, Desert Iguana, Ball Python, Puerto Rican Gecko, European Slow-worm, Brown-hooded Agama Lizard, African Mole Snakes and Puff Adders. The addition of a nine-foot alligator increased the interest of our Large Alligator Pool.

A particularly nice assortment of both yellow and black color phases

of the Timber Rattlesnake was displayed throughout the summer, also three varieties of copperheads. Several litters of these poisonous species were born and segregated with their mothers. The Northeastern Snake section, showing most of the species native to this state, proved highly popular.

Excitement was furnished in September by the breaking and entry of our Reptile House. A five-foot Emperor Boa was stolen at night, the thief entering a lobby window and breaking the lock at the rear of the cage. The only clue was a handkerchief with a torn corner. Evidently the thief had used it to distract the snake's attention; then, when the snake had grabbed it, he tore it loose and threw it away. Police undertook to notify dealers of the loss, but one dealer, who had been overlooked, called us two days later offering a fine Boa Constrictor for sale. It proved to be ours, although the thief was never caught. Identity was established beyond a doubt by several threads dangling from the corner of its mouth—threads which matched those from the discarded handkerchief.

Snake serum kept in the Animal Hospital refrigerator for emergencies was put to good use in December when we were notified that a boy, just entered at the Bellevue Hospital, had been bitten by a baby copperhead. His physician appealed to us for help and through the quick response of the police, we were able to send our Head Keeper in a squad car to the hospital and the serum was administered within thirty minutes after the request was received. In seven days the boy was discharged fully recovered.

# Improvements

In order to make our display cases as natural as possible, we have removed all white gravel from the floors and substituted flat rocks, tree bark, pine needles, evergreen branches and hollow logs. The snakes shed better under these conditions and seem more contented, now that they can conceal themselves to some extent. Water containers are for the most part hidden behind logs. White enamel tubs in three of the larger cases have been made shallower and less conspicuous by lining them with stone and cement. The installation of a sluice gate between the larger alligator pools has made it possible for us to segregate at will specimens which have become too aggressive.

A Bulletin Board for posting reptile news has been erected near the exit from the main exhibit hall. One section is devoted to listing ten interesting reptile facts, another to a translation of scientific names, another to a definition of the less common label terms, and a fourth to

acknowledging donations. Information on the Bulletin Board is changed four times a year. Public interest in the feature has been most gratifying. Index cards inserted in holders at the back of the more important snake cases makes it possible now to keep accurate records of shedding and feeding.

As a result of experiments with colored backgrounds, plans have been made to modify the present cases in the east section and apply harmonious color backgrounds. Plans have likewise been submitted for displaying strictly aquatic turtles in aquaria, semi-aquatic and terrestrial turtles in terraria, at opposite ends of the present Tortoise Run; and for converting the lobby into an attractive spot for the display of insects.

The National Zoological Park, the Philadelphia Zoological Garden and the Staten Island Zoological Park were visited to note their methods of operation and exhibition.

#### Service

More than 580 letters were written and transcribed from May 16 to the end of the year, most of them being in answer to public inquiries. About 70% of these letters had to do with reptiles. Many "foxhole arguments" were settled for members of the Armed Forces stationed in various parts of the world. Information on poisonous snakes of Okinawa was furnished to one contingent well in advance of the attack.

Believe-it-or-not, Time, Life, Book of Knowledge, Reader's Research Bureau, Science Service, The Answer Man Program and many other agencies asked us to check their information. Demonstration reptile lectures were given before the Annual Boy Scout Camporee and the YMCA in Yonkers. Snakes were exhibited by request for the veterans at St. Albans County Fair.

# CENSUS OF THE REPTILE DEPARTMENT December 31, 1945

Orders		Species	Specimens
Caudata	Salamanders	. 1	5
Salientia	Frogs		3
Loricata	Crocodiles and Alligators	4	62
Squamata	Snakes	33	89
_	Lizards	8	18
Testudinata	Turtles and Tortoises	22	121
	Total	. 70	298

Summary: Orders, 5; Species, 70; Specimens, 298.

#### **INSECTS**

April 4 marked the establishment of an Insect Department in the Zoological Park. This was a major undertaking during a war year, when both materials and man power were scarce, but the importance of insects in the general economy of nature justified the move. Although a separate building for the display of live insects cannot be erected until the present housing shortage is relieved, nevertheless extensive plans have been submitted and preliminary drawings have been received from the architects. The tentative site chosen for the building is northeast of the present Primate House.

Meanwhile, necessary steps have been taken toward organizing the Department. A basic entomological library has been assembled, supplementing the Curator's own library; essential laboratory equipment has been purchased, record forms drawn up and printed, and an efficient office secretary secured. A type collection of mounted insects has been steadily growing from specimens sent in by the general public and those collected by the Curator and young volunteers. Three boys, from fourteen to sixteen years old, assisted in the work. They gained experience in collecting, killing, mounting and identifying insects, donated first specimens to the Society and kept duplicates for themselves.

The arrangement was a happy one for all parties concerned. To date 133 species belonging to 72 families have been identified, mounted, catalogued and stored for future reference.

Early in April it was announced by press and radio that the Department was prepared to identify insects submitted to it for that purpose and to offer suggestions for their control. The response was immediate. Small packages began arriving through the mail. Letters and telephone calls doubled and tripled. A need was being met and the Department was becoming known throughout the seaboard States quicker, perhaps, than would have been possible in any other way. The gratifying part of the whole experience was that inquiries were not limited to common household insects, but instead extended afield to include more than forty species.

The first invertebrate exhibit offered by the Department consisted of two Black Widow Spiders submitted for identification from Flushing. They were displayed in separate containers within a small display case in the Reptile House. At the close of the year Black Widows of the third generation were on display.

Praying Mantes were raised to adulthood from egg masses sent from New Jersey, then placed on exhibit, but the uncertainty of their food supply and the extreme dampness of the weather conspired to kill them in less than a month. A thriving culture of meal worms was started subsequently to furnish emergency food rations.

On August 3 an exhibit was installed in the lobby of the Reptile House which proved a major attraction. It consisted of a bee tree and a colony of some 15,000 honey bees.

For two months the number of bees increased considerably and built new comb, but with the advent of frost, the queen stopped laying. Because of the scarcity of stored honey, it became necessary in November to start feeding sugar syrup. Bee dwindling commenced soon afterwards, when it was difficult to keep the temperature in the nook at a sufficiently low point to avoid flight, but at the close of the year the exhibit was still in presentable condition.

A large frame of butterflies and moths, gathered from many parts of the world, was donated to the Society, with the understanding that, when live caterpillars are on display, adult specimens may be taken from the frame and mounted in plaster for exhibit with them.

Plans for a rotary insect case, designed primarily for the Insect House of the future, were reproduced in miniature, a full-scale model being prepared for showing at the Fiftieth Annual Meeting in January. This case is so constructed that it is difficult even for small insects to hide. One half of a circular, transparent drum is on view at all times, the other half being in preparation for a new exhibit. By simply revolving the unit the scene is shifted. Because many insects are relatively shortlived, such a device is necessary to facilitate their display.

Another feature of this rotary case is its attached wings for holding labels. The wings are set at an angle to the drum, thus leaving no doubt as to which exhibit they pertain. It is expected that the name and locality label will appear over the revolving unit, but that one wing each will be reserved for listing enemies and foods, respectively.

Tentative drawings have been submitted for reconversion of the Reptile House Lobby into a small but attractive area for insect displays. This plan involves removal of the present cement barriers, extension of the terrazzo flooring, erection of a false ceiling, alignment of an ant and a bee exhibit on the west side of the lobby, and the rotary insect case and six aquaria on the east side.

#### Public Service

Of the more than 580 letters handled from May 16 to the end of the year, about 30% of them had to do with insects. Questions ranged in complexity from "Do moths from trees eat woollens?" to "What organisms will attack a fly?" Of the 35 labels written for exhibits, six pertained to insects. Four insect articles were written for ANIMAL KINGDOM, one for a School Nature League Bulletin to be published by the National Audubon Society.

Talks were given before the Woman Pays Club, Brown Club, a New York Teacher's Nature Class and Sigma Delta Epsilon. A symposium on DDT, sponsored by the National Audubon Society, was attended in New York and a conservation-education meeting was attended at Life's Camp in New Jersey. Merck Laboratory in Rahway, New Jersey, was visited to obtain first hand information on culturing certain insects of economic importance.

### Publicity

The Department received some excellent notices during the season, including full-length articles and photo-spreads in many metropolitan and out-of-town publications. The New York Times Magazine, the Sunday News, the New York Sun, Everybody's Weekly, and the Providence Sunday Journal were especially generous with their comments.

#### CENSUS OF THE INSECT DEPARTMENT

December 31, 1945

Orders		Species	Specimens
Araneida	Spiders	3	dozens
Hemiptera	Bugs	1	dozens
Hymenoptera	Ants, Bees	2	thousands
Orthoptera	Mantes, Cockroaches	3	dozens
	Total	9	many thousands
	0 1 4 6 1 0 6 1	1000	

Summary: Orders, 4; Species, 9; Specimens, 1000s.

# HOSPITAL AND LABORATORY

LEONARD J. Goss, Veterinarian

BECAUSE there were no major importations during the year, the veterinary problem has been primarily one of holding together the existing collection and concentrating on the birth rate and care of newborn animals. The appended table shows our holding ability was only 1.4% poorer than 1944 in the case of mammals but even so, 7.5% better than the past five-year average. The bird collection, also, held up exceptionally well, as seen in the table. The losses for the year were 1.1% less than the previous year and 1.5% better than the past five-year average. It must be kept in mind that it is impossible to hold off forever against the element of time and the inevitable senile changes taking place in a collection of animals which has not been rejuvenated by new importations for five years.

Births in the Mammal Department numbered 90, including six still-births. Such a birth rate is, indeed, encouraging, particularly since we were pleased with last year's 70 newborn mammals.

A high birth rate is not without its troubles and concern. With newborn animals, we constantly have to be on guard against "childhood diseases," weaning problems and weather conditions. In combatting the former, we have adopted the policy of vaccinating young susceptible animals against such diseases as canine distemper and infectious feline enteritis (panleukopenia). Heretofore, vaccination was not practised, with the result that we were periodically plagued with outbreaks of distemper or feline enteritis which caused the loss of many canines, felines and closely related species. During the year, a young Chilean Wild Dog received from South America and three Coyote puppies born in the Park were vaccinated against canine distemper. A Black Leopard, Bengal Tiger, 2 Lions, 2 African Civets and 1 Palm Civet, all born in the Park, were vaccinated against feline enteritis. Vaccination was carried out without ill effects, and none of the animals has shown any indication of the diseases. It is believed immunity was established by the inoculations.

A young Hamadryas Baboon gave a positive reaction to the tuberculosis test and was destroyed and proved to be infected. No other cases of the disease occurred in the Primates. This is the second year in which there has not been a single spontaneous death from tuberculosis in the Primate

collection. We are still operating under the system of frequent testing to remove reactors before the disease spreads to non-infected animals. Combined with the skin test for tuberculosis are X-ray and blood examinations. These tests are being conducted as part of an investigation to extend over several years, in an attempt to improve methods for diagnosing this disease in Primates.

The two cow Moose continue to thrive after three years and five months on exhibition. The larger of the two is troubled with overgrown hooves, which have to be trimmed periodically, but otherwise they appear healthy.

The female and male Gorillas have completed more than four years in the Zoo and now weigh 146 lbs. and approximately 190 lbs., respectively. In February, the female Gorilla lost her appetite, became very lethargic, held her head in her hands and ran a temperature of 102.5 degrees. Sulfadiazene was given every four hours for four days, following which she returned to normal. The male, "Makoko," has developed a peculiar habit of walking on the outside of his left foot periodically. No reason can be found for this action. Beyond these two minor incidents, the animals appear well and seem to be progressing satisfactorily. The female gained 29 lbs. and the male 46 lbs. during the year.

The female Lion cub, "Limpopo," born December 22, died on May 14 after a two-day illness. Death was caused by a protozoan parasite infection—toxoplasmosis. This parasite is extremely interesting from a medical standpoint. It is found in all body tissues and the blood, is highly fatal, and infects man, a variety of mammals, birds and reptiles. The case in the Lion cub is the first one diagnosed in the Zoo. Its occurrence is being recorded in the literature.

The smaller of the two female Giant Pandas, "Pan-Dee," died suddenly on October 4 of an acute idiopathic intestinal paralysis after three years and ten months in the Zoo. Her last recorded weight was 201.5 lbs. on September 18. The remaining Panda, "Pan-Dah," developed intestinal symptoms and extreme nervous irritability just eleven days after "Pan-Dee" was found dead, and it was feared that she, too, would be lost. However, she responded promptly to medication and since that time has continued to thrive. At the end of the year she weighed 299 lbs. During this animal's illness, the office of the Chief Medical Examiner of the City of New York made a chemical analysis of excrement from the animal. No poisons were found. Appreciation for this service is extended.

In December, a very baffling condition occurred in the Aquatic Bird House when four Storks died over a period of three weeks. The losses

included the famous female Shoebill, "Jimmy," who had been in the collection nineteen years and three months. The disease was characterized by loss of appetite and weight, followed by weakness and death in three days to two weeks. We were unable to establish a diagnosis either ante or post mortem. Various empirical treatments were ineffective. Storks in the collection have always been fed butterfish. Last summer, butterfish were unavailable and smelts were substituted. The birds liked and did well on the smelts. When they were put in winter quarters in October, butterfish were again available and replaced the smelts. This change was well received by the Storks but shortly was followed by the setback resulting in their deaths. Extensive examination of the fish and the sand in the cages by the Hospital and Aquarium staffs failed to reveal any toxic substances. Meanwhile, other birds and mammals in the Park, eating the same fish, remained unaffected. Feeding of other fish such as whiting and mackerel failed to correct the condition in the Storks. The cause of their deaths remains undetermined.

During August, the Aquatic Bird House served as temporary quarters for most of the psittacine collection. During this time, there was a mild outbreak of paratyphoid infection, resulting in the loss of four Parrots. This infection was, undoubtedly, rat-borne. Fortunately, it did not spread to other species.

A nutritional improvement was made during the year by the purchase of equipment for grinding together meat and bone. In the past, ground meat fed to the animals has been "horseburger," i.e., horse meat without bone. With the new equipment, the ground meat now also contains ground green bone which is highly essential for the maintenance of calcium in the body of pregnant and lactating adults and the growth of bone in immature carnivora.

The Veterinarian attended the following meetings during the year:

- 1-Research Workers in Animal Diseases in North America, and
- 2-U. S. Livestock Sanitary Association, in Chicago in December,
- 3—Annual Conference for Veterinarians, at Cornell University in January.
- 4—Monthly Meetings of the New York City Veterinary Medi-

While attending the Chicago meetings, visits were made to the Lincoln Park Zoo and the Brookfield Zoo.

The Veterinarian served as Vice-president of the New York City

Veterinary Medical Association and Chairman of the Committee on Diseases of Wild Animals for the American Veterinary Medical Association.

A paper, "The Brain of the Giant Panda," prepared with Dr. F. A. Mettler of the College of Physicians and Surgeons of Columbia University, has been accepted for publication in *The Journal of Comparative Neurology*. A second paper with the same co-author, dealing with canine striocerebellar degeneration, has been submitted for publication.

We have continued to supply tissues and organs from deceased animals to a number of institutions doing research requiring these organs.

The Hospital Staff devoted two days in December to motion picture photographers making a picture for the State Department, for international distribution.

Twenty-six specimens (twenty birds, six mammals) were turned over to the American Museum of Natural History. A Great Gray Kangaroo was sent to the Peabody Museum in Cambridge, Massachusetts.

#### MORTALITY TABLES FOR 1945

		MAMMALS		
Year	Total	in Collection	Died	Mortality Percentage
1945		545	85	13.94
1944		503	63	12.5
1943		562	115	20.4
1942		702	206	29.3
1941	***************************************	874	215	24.5
	Total	3,186	684	

AVERAGE MORTALITY FOR PAST FIVE YEARS: 21.4

	D	

Year	Total	in Collection	Died	Mortality Percentage
1945		1,525	234	15.34
1944		1,609	265	16.4
1943		1,803	340	18.8
1942		2,008	321	15.9
1941		2,273	391	17.2
	Total	9,218	1,551	

AVERAGE MORTALITY FOR PAST FIVE YEARS: 16.8

# THE AQUARIUM

CHRISTOPHER W. COATES, Curator and Aquarist

Ross F. Nigrelli, Pathologist

Myron Gordon, Assistant Curator

THE END of the war and the end of the year found the Aquarium still without any permanent home and without any definite date for occupancy of our proposed new building.

Nor did the end of the war ease any of the restrictions on the collecting and moving of fishes from one part of the world to another, so that it was impossible to make any great changes in our collections.

The past year did, however, give us more time to refine and develop the kind of exhibition which we have found successful. This is good for the present token collection, but is really essential for the ultimate new institution.

#### **Exhibitions**

While it is usually impossible to make any comprehensive expression of the full life of any animal in the few minutes or hours during which a visitor looks at the exhibition, we have found it possible to demonstrate some of the facets of the living of the fishes by means of exhibits together with such reading matter as is necessary to explain them. One exhibit developed during the year explains how it is possible, using genetical methods, to produce fish never found in nature. The exhibit itself shows specimens of two wild fishes, plain little creatures native to Mexico, and eight of the hundred or more different kinds of fish resulting from calculated crossings and recrossings of the parent stock. These new fish show colors of a brilliance and pattern completely lacking and not even indicated in the originals.

Again, we undertook to show several of the stages between a normal fish, fully eyed and colored, living in a river in Mexico, and its completely eyeless and colorless relatives living in a cave immediately adjacent to the river. Suitable wording, with some transparencies, complete an exceedingly popular exhibit.

A "working exhibit" of the Electric Eel was erected to illustrate the most powerful of nature's dynamos. It consists of one large tank, housing an Electric Eel; a large electric sign, with letters fourteen inches high; a loud speaker, and a public address system. The address system supplements rather copious labelling, and at intervals the fish is encouraged to light the electric sign and operate the loud speaker. As we expected, the "eel show" is popular and attracts fascinated crowds, but because the fish has found no one but friends in the Aquarium, it does not discharge continuously but only when coaxed to do so by an attendant. On crowded days the demonstration is operated at half-hourly intervals, at other times on the hour throughout the day.

The remainder of the Aquarium, apart from the demonstrations erected and discussed in previous years, is concerned with the establishment of permanent populations of fishes in as attractively arranged tanks as it is possible to find. Many of these tanks are virtual "villages" of fishes in which the population is static and continuous, the specimens being born, growing up, and procreating their kind to keep the population running indefinitely.

#### Research

Behind any such exhibition there must be knowledge of the nature and necessities of fish living and so our research has continued unabated throughout the year.

Much of it, of course, continues far beyond that required for the keeping of fishes. And it is proper that it should. To learn how to develop different color patterns in a fish, for example, involves learning many things associated with the fish but not essentially part of the technique of exhibiting it. These actual color studies have guided us toward at least one of the origins of cancers in all living tissues, for it enables us to unearth and develop factors hidden deep in normal tissue and release artificially, and at will, the controls occasionally fatally released by nature.

Studies of the parasites and diseases of fishes for exhibition lead us into work on the parasites and diseases of potential food fishes and how best these may be controlled so that the food is available without the possibility of introducing new illnesses to plague mankind.

Studies of the electricity of the Electric Eel, even for a popular show, lead us into the mysteries of all nerve activity, including sicknesses of the brain.

All of these potentialities of our basic work are eagerly seized upon by national and local agencies concerned with the protection of life and health, who work in the closest collaboration with the staff of the Aquarium.

#### Collaboration

Working with us on various projects throughout the year were Dr. George M. Smith, Department of Anatomy, Yale School of Medicine; Dr. Richard T. Cox, Department of Physics, Johns Hopkins University; Drs. David Nachmansohn and Mortimer Rothenberg, Department of Neurology, College of Physicians and Surgeons, Columbia University; Drs. Horace Stunkard, Harry Charipper, Eli Goldsmith, Albert Gordon, Roberts Rugh, Robert Gaunt and M. J. Kopac of New York University; Drs. Yngye Olsen and Daniel Merriman, Yale University; Dr. M. Vertner Brown, College of the City of New York; Dr. Lester Aronson, Department of Animal Behavior, American Museum of Natural History; Dr. Margaret Bohmert, Fordham University; Dr. Michael Levine, Montefiore Hospital; and Dr. McKean Cattell, Cornell Medical School.

Our services were requested in collaboration more or less continuously by such agencies as the Fish and Wildlife Service of the U. S. Department of the Interior, and the Federal Security Agency, Pure Food and Drug Administration.

#### Publications

Besides popular articles in various publications, the staff puplished during the year:

#### MR. COATES

Aquariums. In Britannica Book of the Year (1946).

Processes of Electric Tissue, Relations Between the Structure, Electric Characteristics, and Chemical Processes of Electric Tissue, with R. T. Cox and M. Vertner Brown. The Journal of General Physiology, Jan. 20, Vol. 28, No. 3, pp. 187-212.

A Comparison of Length and Voltage in the Electric Eel, Electrophorus electricus (Linnaeus), with R. T. Cox. Zoologica, Vol. 30, Part 2, pp. 89-93.

Weekly column on fishes in the New York Sun continued for the fifteenth year.

#### Dr. Nigrelli

Notes on the Use of Dyes for Fish Disease Control. The Aquarium, Vol. 13 (12). Trypanosomes from North American Amphibians with a Description of Trypanosoma grylli Nigrelli (1944) from Acris gryllus (Le Conte). Zoologica, Vol. 30, Part 1, pp. 47-56.

The Presence of a Myxobacterium, Chondrococcus columnaris (Davis) Ordal and Rucker (1944), on Fundulus heteroclitus (Linn). Zoologica, Vol. 30, Part 2, pp. 101-104.

#### Dr. Gordon

A Swellfish Story. Animal Kingdom, Vol. 48, pp. 182-186.

Sexual Dimorphism in the Skeletal Elements of the Gonopodial Suspenorium in Xiphophorin Fishes, with Paul Benzer. Zoologica, Vol. 30, Part 2, pp. 57-72.

The World's Smallest Flowering Plants. Nature Magazine.

Organic Evolution and Genetics. American Yearbook for 1944. (Published in 1945). Swordtails and Black Lace. Aquarium, Vol. 13, pp. 136-138. Shrimps of the Desert. Aquarium, Vol. 14, pp. 141-142.

#### Personnel

We were happy to welcome James Malcolm back from active service with the Seabees. Our two remaining servicemen, James W. Atz and John Blair, are still away. Mr. Blair received severe wounds in the spring drive in Germany early in the year and has been incapacitated since then. He is reported to be recovering, however, although very slowly, since the sciatic nerve was almost completely severed. Mr. Atz is still in service in the South Pacific.

Dr. Myron Gordon was appointed to the National Research Council Committee for Pure Genetic Plant and Animal Stocks, and to the Committee for Common Problems of Paleontology, Genetics and Systematics. He was also appointed instructor at the Cold Spring Harbor Biological Station, Long Island, during the summer months.

Dr. Nigrelli was appointed Visiting Assistant Professor, Graduate School, Division of Biology and Medical Sciences, New York University, and was elected Chairman, Section of Biology, New York Academy of Sciences, in which latter capacity he arranged and conducted numerous national conferences on matters of biological interest.

Mr. Coates was elected Fellow of the New York Academy of Sciences. Mrs. Dorothy Bock, secretary, resigned because of ill-health, her place being taken by Mrs. Beatrice Rothschild.

Mr. Paul Benzer, Scientific Assistant, resigned because of ill health, and was replaced by Miss Ethel Hafter, recently of New York University.

Members of the staff gave seminars, lectures and talks on the research of the Aquarium at the following institutions:

Columbia University,
New York University,
College of the City of New York,
Carnegie Institute of Washington, Long Island,
New York Aquarium Society,
Queens Aquarium Society.

# DEPARTMENT OF TROPICAL RESEARCH

WILLIAM BEEBE, Director

Jocelyn Crane, Research Zoologist; Henry Fleming, Entomologist; George Swanson, Artist

### Forty-fifth Expedition

In the year 1945 the Department of Tropical Research made its forty-fifth expedition—the second to Venezuela made with the generous cooperation of the Creole Petroleum Corporation.

The choice of Rancho Grande as a biological field station by the Creole officials and the Zoological Society was a happy selection. The metamorphosis of one wing of the great unfinished jungle building into an efficient laboratory and comfortable living quarters produced conditions for study and research which have seldom been equalled elsewhere in the world. The generous permission of the Venezuelan Government to use the National Park for scientific work, and the constant hearty cooperation of Creole and Venezuelan friends were a fitting climax.

The Department occupied the station for five months, and day and night brought to the study of the surrounding wild life all its enthusiasm and accumulated experience.

Finally we strove never to lose sight of our subsidiary objects, to share the results of our researches with the scientists and other interested people of Venezuela, and to endeavor to arouse in them a real interest in the conservation of forests, and a knowledge and appreciation of the splendid wild life of their country.

In Caracas, the generous hospitality of Mr. and Mrs. William Phelps placed their house always at our disposal. At Rancho Grande itself, the Creole Corporation transformed eighteen barren, windowless rooms into luxurious bed and bathrooms, kitchen, dining and photographic rooms and a laboratory 15 x 60 feet, with the entire south side of glass. Another unfurnished room functioned as a garage, and several others, when wired, made excellent cages for our captive wild birds and mammals. Clear, clean running water, piped from a mountain torrent, and a 7500-watt generator provided necessary water and light. An automobile sent for our use from New York served us well throughout our stay.

Four public showings of our color motion pictures were given, and

two exhibitions were made, one of Mr. Swanson's paintings and another of Miss Crane's photographs. In answer to a request, plans were developed for a suggested governmental aquarium to be built at Macuto. Dr. Beebe accepted membership on an advisory committee in connection with the post-war development of economic fisheries.

We used all our methods developed during past expeditions for attracting and studying wild creatures, together with new ones invented to meet the peculiar terrain of Rancho Grande. We dug jungle pits to entrap rare night animals and reptiles; electric lights and baits of sugar and decayed fruit to attract moths and butterflies. Knotted ropes and rope-ladders were proving successful means of negotiating otherwise inaccessible high trees and steep slopes, when a broken leg put a temporary end to this method. We shot when we had to and our Venezuelan helpers were expert trappers. The Director obtained better results than ever with his giant glasses, especially with birds and other shy arboreal creatures. A wise government law forbids shooting of birds in the National Park, so we depended on a large collection of bird-skins loaned by William Phelps, combined with 12-20-40 power binoculars.

#### General Problems

The most amazing thing about Rancho Grande is the accessibility, within an hour, of thirteen distinct zones of life. The proper study of the living creatures which are adapted to each of these, would occupy a score of scientists for their natural lives. Nevertheless, we have never hesitated to "rush in" (even to the depth of a half mile under sea) and so in the five months at our disposal, we made at least an appreciable beginning of this ambitious undertaking.

Another problem which goes hand in hand with this one is of utmost importance to the people of Venezuela. We already have made many notes on the influence which eight years of conservation of plants and animals has had in the Rancho Grande National Park. Direct comparison with conditions in adjacent, unprotected areas vividly demonstrates the value of conservation.

# Specific Staff Problems

George Swanson as staff artist completed 87 paintings in color of living creatures, as well as a large number of sketches. He also took on the duties of botanist and as many flowers and plants as possible were collected, pressed, and with the generous help of Dr. Pittier, named and catalogued.

Henry Fleming, entomologist to the expedition, would have required the help of a dozen full-time assistants adequately to cope with the mere collecting and preserving of the host of rare and new moths and other insects. Breeding and experimenting were out of the question when we realized the sheer labor of keeping up with such unexpected riches. An estimated 70,000 insects were brought back to New York. About 20 per cent. of these were ruined by the two and a half months' delay in the hot humid custom house at La Guaira. To his scientific activities Mr. Fleming added those of engineer and master mechanic, and due to his ministrations, the car and generator, artery and heart of our isolated expedition, were maintained in perfect running order, without a single stall or cough.

Jocelyn Crane's principal researches interdigitate with the Director's, as both of them stem from the same basic interest in the ecology and evolution of life on the earth. Rancho Grande is proving a rich field for the continuation of her studies on the psychology, especially the courtship, of jumping spiders. Hundreds of these little creatures lived in perfect health in vivaria in the laboratory, feeding and molting, and ultimately allowing their courtships and elaborate battles with rivals to be studied and photographed. This was only one among a dozen problems upon which Miss Crane worked.

When it seemed assured that our studies could be continued through one or more additional seasons, a plan of general problems was formulated, all individual researches being fitted into it, thus giving them a united as well as separate significance.

The Director identified and studied more than one hundred species of birds from the windows of the laboratory. All rare and interesting frogs, lizards and snakes were kept alive, and their eggs, young and mode of life watched and recorded. A beginning was made in the investigation of the amazing world of life in the water of lofty air-plants, from the most minute creatures to salamanders. So-called luminous lizards were captured and the light from their bodies proved to be a myth. Tests were made upon scores of beasts, using frogs, lizards, carnivorous insects and monkeys, as to their edibility or distastefulness, or the influence played in their lives of camouflage and mimicry.

#### General New York Activities

Dr. Beebe gave five, and Miss Crane nine, public lectures. No new books appeared, but four of the earlier ones were translated into Spanish and two into Swedish. The script of two reels of Miss Crane's color film

is being completed by the Coordinator's Office, for distribution throughout South America, with full credit to the Zoological Society.

After eleven expeditions to the Bermuda Field Station since its founding in 1928, Nonsuch was finally closed, as the continual roar of planes low over the laboratory and the great diminution of shore invertebrates and fish, because of the continual stirring up of fine coral in the water, make the station all but useless for scientific work.

#### **Publications**

The published contributions during 1945 numbered thirty, bringing up the total to seven hundred and thirty. Of this year's papers fifteen appeared in Animal Kingdom and Zoologica.

- 701-Shopping for a Jungle. Jocelyn Crane. Animal Kingdom, Vol. 48, No. 1, pp. 3-13. 702-The Oldest Zoological Park in North America. Rafael Martin del Campo and William Beebe. Animal Kingdom, Vol. 48, No. 1, pp. 14-16.
- 703-A New Genus of Surinam Toads. G. Kingsley Noble. American Museum Novitates, No. 164.
- 704—Sphingidae of Kartabo and Caripito. William Beebe and Henry Fleming. Zoologica, Vol. 30, No. 1, pp. 1-6.
- 705-Field Notes on the Lizards of Kartabo and Caripito. Part III. William Beebe. Zoologica, Vol. 30, No. 2, pp. 7-32.
- 706-Spiders of the Family Salticidae of British Guiana and Venezuela. Jocelyn Crane. Zoologica, Vol. 30, No. 3, pp. 33-42.
- 707-Saturnioidea of Kartabo and Caripito, Henry Fleming, Zoologica, Vol. 30, No. 7, pp. 73-80.
- 708-Vertebrate Fauna of a Tropical Dry Season Mud-Hole. William Beebe. Zoologica, Vol. 30, No. 8, pp. 81-88.
- 709-The Rancho Grande of the New York Zoological Society. William Beebe. Science, February 23rd.
- 710-The Humor and Myth of Linnaeus. William Beebe. Animal Kingdom, Vol. 48, No. 2, p. 51.
- 711-Delights of Rancho Grande. William Beebe. Animal Kingdom, Vol. 48, No. 3, p. 87. 712-The Family Anatidae. William Beebe. Animal Kingdom, Vol. 48, No. 4, p. 119.
- 713-We Carry the Society into the Jungle. William Beebe. Animal Kingdom, Vol. 48, No. 5, pp. 152-157.
- 714-Impressions of Venezuela. William Beebe. Newsletter 25; Association Norte-
- americana de Venezuela, Caracas, June 7th. 715—Fulgoroidea of Kartabo. Z. P. Metcalf. Zoologica, Vol. 30, No. 14, pp. 125-144. 716—Bathypelagic Nemerteans of the Bermuda Area. Wesley R. Coe, Zoologica, Vol. 30,
- 717—Time without Years. William Beebe. Colliers, May 19th. 718—Expedicion Cientifica. El Farol, April 7th.

No. 15, pp. 145-168.

- 719-Guerra en Rancho Grande. William Beebe. El Farol, September.
- 720-Rancho Grande Laboratory. Caracas Journal, June 1st.
- 721-La Primera Expedicion Beebe a Venezuela. El Pais, Caracas, March 3rd.
- 722-The Beebe Exhibit. Caracas Journal, July 13th.
- 723-El Subio que Desciende a las Profundidades del Mar. El Nacional, Caracas, July 13th.
- 724-Notes on the Agricultural Conference. Caracas Journal, August 3rd.
- 725—El Doctor Beebe y su Expedicion. Brujula, Maracay, August 3rd.
   726—Rancho Grande, Venezuela; Informe sobre su conveniencia para una Estacion Biologica. Para la Tercera Conferencia Interamericana de Agricultura. Por Jocelyn Crane, July 24th.

727—At Home in the Jungle. William Beebe and Jocelyn Crane. Colliers, Nov. 10th. 728—Jungle Studio. George Swanson. Animal Kingdom, Vol. 48, No. 6, pp. 170-175. 729—Amphipoda of Bermuda. Shoemaker. Zoologica, Vol. 30, No. 17, pp. 185-266. 730—Meliponidae of Caripito. Henry Fleming. Zoologica, Vol. 30, No. 18, pp. 267.

#### PUBLICATION AND PHOTOGRAPHY

WILLIAM BRIDGES, Curator
SAM DUNTON, Photographer

A LONG-ESTABLISHED policy of the Department of Publication, of making a generous estimate of the size of its printing orders so there would always be a surplus stock of both Animal Kingdom and Zoologica, was amply justified late in 1945. At the end of the war European and Oriental libraries, many of them destroyed in all but name, began the task of reconstituting their files of periodicals. Those to which, before the war, we had sent our periodicals, hastened to ask for issues that had appeared during the war years and, in many cases, for complete files from the very beginning of publication.

Our technical journal, ZOOLOGICA, is dispatched to foreign countries through the agency of the International Exchange Bureau in Washington and some of the 1940 issues, held in Washington since publication, are only now being delivered as shipping conditions improve. Consequently we have notified all our correspondents abroad (on a form letter in French and English) that at the end of 1946 we will undertake to supply all their missing numbers. By that time we expect that the vast, accumulated mail in the offices of the International Exchange Bureau will have been delivered, and files of ZOOLOGICA and ANIMAL KINGDOM can be checked accurately for "misses."

Some few back numbers of our magazines are out of print or virtually so, but we will be able to complete files for the great majority of our corresponding scientific institutions abroad.

Several months in the early part of the year were spent in making a complete inventory of our publications stock—a sizeable job, considering that Animal Kingdom has been published regularly since 1901, Zoologica since 1907, and our Annual Report since 1896.

Wartime shortages of many kinds of coated paper restricted the publication program that had been planned for the year, but nevertheless we issued the following:

Reading Between the Lions.—A 4-page selected reading list, with animal illustrations, issued jointly with the New York Public Library.

My Trip to the Zoo. A new edition (the fifth) of a popular little booklet for children, illustrated by Joel Stolper and written by William Bridges.

Map of the Zoo. A new edition, to sell at 5 cents.

Monkey Faces. A new edition, written by Mr. Bridges.

Farm Dictionary. A second edition, the first edition of 20,000 copies having been sold out at the Farm-in-the-Zoo, at the issue price of 2 cents a copy.

Picture Sheet No. 1. An interesting innovation, worked out with the Department of Education, for utilizing halftones of pictures published originally in ANIMAL KINGDOM and the ANNUAL REPORT.

Zoobar Menu. The old menu was redesigned, with a border of animal pictures, which adds greatly to its interest and attractiveness.

Snakes of the Northeastern United States. This popular and badly needed booklet, written by Clifford H. Pope, a Fellow of the Society, was sent to press at the end of the year for spring publication.

There was, 'as usual, considerable miscellaneous printing that flowed through the department, including two attractive membership folders designed by Mr. Carlisle.

In the Zoological Park's own printshop, 45 printing jobs ranging from postcards to complicated forms were put out for various departments, in addition to hundreds of labels—the latter the routine, basic operation of the shop. Our perennial search for a cardboard that will stand up under extremes of weather when it is used for exposed labels seems to have come close to the end, for during the past year the Superintendent of Construction and Maintenance suggested that we try a new, thin, spruce board then coming on the market as a construction material. It is standing up surprisingly well, even when used for our largest (12 x 18) labels.

In the photographic half of the department, Staff Photographer Sam Dunton turned out 542 still negatives, many of which have appeared or will appear in the Society's publications, and managed to get enough Kodachrome 16 mm. motion picture film to complete two reels of pictures—"New Ideas" and "Something's Always Happening at the Bronx Zoo." He also (on black-and-white film, Kodachrome being unavailable at the time) got a fine sequence of the display of the Bare-necked Umbrella Bird, the first such picture ever taken, so far as we know. Mr. Dunton's assistance and knowledge were put at the disposal of Mr. Henry Lester, one of our Members, who was interested in high-speed photography, and the result was a magnificent reel showing the wing motion of several species of hummingbirds, in ultra slow motion. This picture was completed before the end of the year and other experiments are planned.

Sixty-one of Mr. Dunton's best still photographs were displayed in

the Heads and Horns Museum for several months, attracting great interest because of their pictorial and technical excellence. Mr. Dunton served as judge for a Manhattan Camera Club competition, and gave a talk, illustrated with our Kodachrome motion pictures, before the convention of the Biological Photographers' Association.

Mr. Bridges gave nine talks to various groups during the year and took part in one television and one radio broadcast. In the spring he arranged with radio station WIRE in Indianapolis to record the voice of an Indiana farmer in a series of hog and cattle calls, the record being used all through the summer as a "theme song" to announce the afternoon milking at the Farm-in-the-Zoo.

Thirteen written press releases were sent out by the department, in addition to more than a score of stories given to the New York press by way of the Associated Press local desk. Press coverage of the Park was excellent.

The usual quarterly parts of ZOOLOGICA were issued, although not at regular quarterly intervals because of printing difficulties. The 18 papers ran to a total of 272 pages. Volume 30 (volume numbering has now been changed from Roman numerals to Arabic figures) for 1945 contained the following papers:

#### PART 1. APRIL 27, 1945

1. The Sphingidae (moths) of Kartabo, British Guiana, and Caripito, Venezuela. By William Beebe and Henry Fleming.

2. Field notes on the lizards of Kartabo, British Guiana, and Caripito, Venezuela.

Part 3. Teiidae, Amphisbaenidae and Scincidae. By William Beebe. Plates I-V; Textfigures 1-16.

3. Spiders of the family Salticidae from British Guiana and Venezuela. By Jocelyn

Crane. Text-figures 1-5.

4. Note on the eared pheasants (Crossoptilon) with the description of a new sub-

species. By Jean Delacour. Text-figure 1.

5. Trypanosomes from North American amphibians, with a description of Trypanosoma grylii Nigrelli (1944) from Acris gryllus (Le Conte). By Ross F. Nigrelli. Plate I; Text-figures 1-4.

#### PART 2. SEPTEMBER 14, 1945

6. Sexual dimorphism in the skeletal elements of the gonopodial suspensoria in xiphophorin fishes. By Myron Gordon and Paul Benzer. Plate I; Text-figures 1-11.

The Saturnioidea (moths) of Kartabo, British Guiana, and Caripito, Venezuela. By Henry Fleming. Plate I; Text-figures 1-2.
 Vertebrate fauna of a tropical dry season mud-hole. By William Beebe. Plates I & II.

- 9. A comparison of length and voltage in the electric eel, Electrophorus electricus (Linnaeus). By C. W. Coates and R. T. Cox. Text-figures 1-5.
- 10. Compensating reactions to the loss of the lower jaw in a cave fish. By C. M. Breder, Jr.

Plate I; Text-figures 1-2. 11. The presence of a myxobacterium, Chondrococcus columnaris (Davis) Ordal and

Rucker (1944), on Fundulus heteroclitus (Linn). By Ross F. Nigrelli and S. H. Hutner. Plate I.

#### PART 3. NOVEMBER 15, 1945

- 12. Notes on the taxonomy of the birds of the Philippines. By Jean Delacour and Ernst Mayr.
- 13. A study of the peripheral blood of a metamorphosing anuran (Rana pipiens). By Harry A. Charipper and Ralph B. Weil.

14. Fulgoroidea (Homoptera) of Kartabo, Bartica District, British Guiana. By Z. P. Metcalf. Plates I-III.

15. Plankton of the Bermuda Oceanographic Expeditions. XI. Bathypelagic nemerteans of the Bermuda area and other parts of the North and South Atlantic Oceans, with evidence as to their means of dispersal. By Wesley R. Coe. Plates I & II; Text-figures 1-26.

#### PART 4. DECEMBER 31, 1945

16. Studies on virus diseases of fish. IV. Lymphocystis disease in Centrarchidae. By Richard Weissenberg. Plates I-III.

17. The Amphipoda of the Bermuda Oceanographic Expeditions, 1929-1931. By Clarence R. Shoemaker. Text-figures 1-48.

18. The Meliponidae (stingless bees) of Caripito, northeastern Venezuela. By Henry Fleming.

Six regular numbers of ANIMAL KINGDOM were published during the year. Volume XLVIII totalled 194 pages, an increase of 38 pages.

#### DEPARTMENT OF EDUCATION

# MYRTICE BLATCHLEY, Associate in Charge

THE newest and in many ways the most unusual educational experiment of the Society was marked by the opening of Question House on Member's Day, June 14. This informational service, another of the "New Ideas at the Bronx Zoo," proved popular with visitors of all ages, some 44,000 of whom passed through its doors during the five months it was in operation. Here, in a special room of novel design, is one place where visitors not only can ask questions about animals, but are encouraged to do so. Mr. Matthew Kalmenoff's four colorful murals depicting Life Spans, Size, Gestation and Incubation Periods and Myths add much to the attractiveness of Question House and evoke many favorable comments, as well as further questions. It even became necessary to erect a railing in front of the murals to keep too enthusiastic visitors from touching the walls with their hands while pointing out some particularly unusual fact to their friends.

A staff of four trained zoologists handled the queries, answering many "on-the-spot," referring others to the various curators and engaging in considerable research to find the answers to the more difficult of the 3,000

questions that were asked. In addition to verbal replies, 186 were given by mail. Questioners were of all ages and from all walks of life. The animal which provoked the most questions was the Elephant. One hundred and seven different questions were asked concerning everything about an Elephant—from its size, life span and gestation period, to the distribution of the sweat glands of this largest living land mammal!

Publications of the Society were displayed in the show case of the service desk flanked on either side by bookcases containing popular and semi-popular books about animals. Because of the many requests received, it was decided to sell Society publications and six standard reference books covering the main fields of zoology. Two hundred and thirty books and 1,300 leaflets were sold. The types of questions asked is serving as a guide in the preparation of additional educational leaflets.

During the winter months inquiries were handled by the Education office directly. We expect to reopen Question House in April. In addition to the normal routine of answering questions, Question House performed a variety of services to the public, such as:

1. Supplying special information for authors, poets, advertising agencies, magazine research bureaus, radio programs, doctors and textile designers.

2. Suggesting helps to teachers in their classroom work.

- 3. Giving suggestions to youth leaders, such as Boy Scouts, Girl Scouts, "Y" groups, etc.
- Recommending useful government bulletins for persons interested in raising rabbits, muskrats, frogs, poultry, etc.

5. Identifying animals and even some plants.

6. Furthering conservation education.

7. Dispelling many superstitions.

8. Giving of much information on reference books and source materials.

Much of the work of the Education Department this past year was organizational in nature. In order that the department might better serve the needs of the members of the Society, the schools and the public at large, a general survey of the department was compiled. Visits were made to other institutions engaged in similar educational work and a comprehensive program planned. A detailed analysis of our visual aids division was made. A thorough revision is in progress which should result in nation-wide distribution of these valuable materials which include 2x2 slides, both black-and-white and color, as well as 16 mm. movies emphasizing sound films in color produced at the Zoo. Alterations in the department office and projection room have provided more efficient working conditions and more attractive appearance.

In collaboration with the Publications Department another new service has been made available in the form of large picture sheets measuring

38x50 inches, each containing about 40 black and white animal pictures arranged on one side of the chart. These pictures can be cut out and mounted for use on bulletin boards, in opaque projectors, scrapbooks, etc. Each chart sells for 50 cents. Thus, it is now possible to obtain at low cost the best animal pictures from the Society's large collection of 23,000 negatives.

The first chart, "Mammals of All Continents," in the proposed series has been published. Others to follow are:

Mammals of Africa
Mammals of North America
Mammals of South America
Mammals of Australia
Mammals of Eurasia
Birds of the Old World
Birds of the New World

An extensive circularization campaign is being conducted to notify libraries, museums, youth leaders and other interested persons of these charts.

All of the regular school services were continued despite handicaps caused by war conditions and staff changes. Schools and other educational institutions were supplied with 1,017 visual aid units, which were viewed by 252,430 persons, a marked increase over the past few years. During the summer months the visual aids were kept in circulation through distribution to summer camps.

Guided tours, which had been temporarily discontinued because of lack of personnel, were resumed on a limited basis in May. Six different tours were planned for school classes of the fourth grade or above. Twenty-five of these tours were given for 908 students. Although most of the groups came from elementary schools, several guided tours were given for college classes in education and geography. In addition, nearly 1,000 organized groups totaling more than 33,000 persons visited the Park under guidance of their own leaders. Since a visit to the Zoo represents one of the few opportunities in the school program for natural history study, we are working to expand the tour program and integrate it more closely with the school curriculum.

Lecture service for schools was maintained in the form of illustrated talks by Miss Ruth Dauchy who worked on a part time basis for the department. Taking along a live Skunk and rooster, plus a series of Kodachrome slides of the Zoo, she visited 38 schools, speaking to more than 17,000 pupils. As in previous years, this service has proved to be one of the most popular.

Seven illustrated lectures for other organizations were given by other members of the department, also two radio programs. One article was written for ANIMAL KINGDOM.

### CONSTRUCTION AND MAINTENANCE

QUENTIN MELLING SCHUBERT, Superintendent

THREE major projects were designed and completed during the past year. The first, the Jewel Room, entailed taking over the southeast room of the Bird House, designing and completely remodelling and decorating it for the new bird exhibits.

The second project was the Question House. For this innovation the north bay of the Picnic Pavillion was used, the area enclosed, remodelled and decorated suitably for its new use.

The third project was the Otter Exhibit. This occupies part of the former Wild Turkey Range. Unique in design and construction, this moated exhibit affords real opportunity for observation of the Otters at play.

A particularly gratifying job completed by the construction department was the repairing and painting of the Sea Lion Pool. The work required five weeks for completion, and more than 100 gallons of special swimming pool paint. It has resulted in good underwater visibility.

Stepping benches in the Lion House have now been completed with but one exception, which will be constructed in 1946.

A new boiler, purchased for the Heads and Horns Building, was of necessity transferred and installed in the Animal Hospital, where the boiler had given out after more than thirty years' constant use.

During the past year, 2,900 "work orders" were issued and completed by this department. Among the many phases of our work are the repair and painting of buildings, cages, corral fences, etc., restaurants and equipment. All these must be completed in time for Spring opening, as well as the Children's Zoo, the Zoobar Restaurant and the Farm-in-the-Zoo. Preparation and building of exhibits for our Annual Meeting are also part of our program.

The resourcefulness of the department has been fully tested during the last war years. The breaking-down and in some cases complete givingout of over-taxed and over-aged equipment has given us our hardest problems—motors, boilers, piping, drainage systems and trucks of 1930 vintage, to mention a few. Secondhand junk yards, which earlier yielded replacements for parts, are now stripped of all that is useable.

With the coming of V-J Day, and gasoline once more available, operation of our tractor trains was again possible. Beginning on August 28 and continuing on through November 15, three units were run successfully. Work was started on all five units, motors completely overhauled, and the cars were completely painted and re-upholstered. The five units will be ready for early spring operation.

During the late summer our service men started returning. It was our duty and desire to reinstate these men in our ranks. This necessitated releasing a number of men who had been temporarily employed during the war years. During the period of adustment, while waiting on City approval of these reinstatements, the men were placed on special projects. Dead tree removal as well as the removal of hundreds of trees destroyed by the hurricane of September, 1944, is being accomplished. With the easing up of the manpower situation as well as the hoped for availability of much needed equipment and supplies, we may anticipate real progress in the year ahead.

In September, 1945, Joseph Stanley, our Storekeeper, was retired after forty years of faithful service.

# MISCELLANEOUS OPERATIONS

#### Children's Zoo

Successful though the 1944 season was for the Children's Zoo, 1945 was even better. For the second successive year, all records were broken, with a total paid attendance of 238,515.

### Riding Tracks

Pony Track rides during the year totalled 189,324, an increase of 21,091 over 1944 and of more than 50,000 since 1943. Weather permitted the ponies to operate 247 days.

The Llama-Camel-Donkey track showed a slight gain over 1944, with 144,152 rides as compared with 142,669. Throughout the summer this facility operated at full capacity, ample evidence that with its present animal operatives it can do no more.

#### Farm-in-the-Zoo

A popular innovation at the Farm-in-the-Zoo in 1945 was a milking demonstration. Three cows were milked by machine on an out-of-doors platform, one each at half-hourly intervals during the afternoon. During the demonstration, the public address system described the physiology of milk production and the advantages of mechanical milking over hand milking.

Visitors to the Farm in 1945 totalled 60,490 persons, in addition to 6,288 school children accompanied by their teachers, who were admitted free. The  $2\phi$  Farm Dictionary was again useful, and 6,486 copies were sold.

Although the Farm-in-the-Zoo is not operated as a production unit, a considerable quantity of produce is available to the Commissary Department each year, and in 1945 the Farm furnished 953½ dozen eggs, 677 pounds of chicken, 221 pounds of lamb and 521 pounds of beef.

#### General Facilities

The Hay Wagon operating between the Farm-in-the-Zoo and the Zoo carried 33,438 passengers in 1945.

The amount of food consumed by the visiting public at the various refreshment stands and restaurants was enormous. A selected few of the items are: 3,180 gallons of fountain syrups, 206,875 bags of popcorn, 151,928 candy bars, 91,330 quarts of ice cream, 56,589 quarts of milk, 3,954 pounds of cheese, 2,314 dozen eggs, 50,122 pounds of meats and frankfurters, 287,856 bottles of carbonated beverages. All cold beverages are dispensed in sanitary paper cups, and more than half a million were used.

The Souvenir Stands report sales of 18,000 toy Walking Penguins. Animal food vending machines dispensed 139,456 bags of food pellets, and the fish sales at the Sea Lion Pool totalled 46,452 fish.

At the Boathouse, flood lights were installed along the bank of the river and night boating was again in operation, rowboat rentals amounting to 34.638.

The Facilities Department welcomed back six men who had been in service. It will miss Charles Masterson, one of our boys who gave his life for his country.

#### **MISCELLANEOUS**

Publications in 1945 by Jean Delacour were the following:

The Ring-necked Pheasant. American Wildlife Institute, Washington, 1945. Classifications and Distributions of the Game or True Pheasants. Pp. 6-10.

Note on the Eared Pheasants (Crossoptilon) with the Description of a New Subspecies. ZOOLOGICA, 30 (4), pp. 43-45.

Notes on the Taxonomy of the Birds of the Philippines. Ibid. (12), pp. 105-117.

Perspective on the Zoological Society. ANIMAL KINGDOM, XLVIII, pp. 135-137.

Nomenclatorial Note. The Ibis, 87, pp. 572-573.

The Family Anatidae (with Ernst Mayr). The Wilson Bulletin, 57, pp. 3-55.

The Display of the Maned Goose. Ibid. p. 129.

Parrot Breeding in the South Western United States. The Avicultural Magazine, Fifth Ser., X (1), pp. 19-21.

Decorative Aviaries in the New York Zoo. Ibid. (3), pp. 57-58.

The Family Anatidae. Ibid. (4), pp. 93-102.

The Gray Jungle-fowl. Aviculture, 15, pp. 289-290.

Fruit Pigeons; Their Characteristics and Care. The Pigeon Loft, 7 (1), pp. 3-7.

Preparing a Post-war Book on Pheasants. Modern Game Breeding. American Pheasant Society, Yearbook, April, 1945.

# SUMMARY OF ATTENDANCE

#### ZOOLOGICAL PARK

Month	1945	1944
January	26,111	61,147
February	92,496	55,151
March	233,349	121,059
April	339,636	207,654
May	214,888	335,592
June	165,562	205,809
July	266,644	299,283
August	315,021	249,805
September	270,669	232,005
October	154,837	189,113
November	102,712	119,621
December	42,598	39,759
	2,224,423	2,115,998
Total visitors from November 9, 18	399.	
to December 31, 1945		96,581,350

# TREASURER'S REPORTS

For the Year Ending December 31, 1945

CORNELIUS R. AGNEW, Treasurer

630 Fifth Avenue

New York 20, N. Y.

## BALANCE SHEET

## December 31, 1945

(Except for income on investments which is accounted for in the year received, this balance sheet is prepared on an accrual basis)

ASSETS		
Cash:		
In Banks	\$ 209,630.97	
On Hand	2,050.00	\$ 211,680.97
Accounts Receivable from the City of New York:  Appropriations for Zoological Park Maintenance for the calendar year 1945 in the amount of \$372,-		
		46 40 - 0 -
447.18 less amount received of \$327,259.21 Other Accounts Receivable		45,187.97
		1,790.24
Inventories		18,736.89
Bonds (Approximate Market Value \$40,503.75) Preferred Stocks (Approximate Market Value \$1,-	\$ 894.401.15	
364,480.00)	1,182,525.07	
Common Stock (Approximate Market Value \$1,		
781,556.75)	1,339,043.03	
Miscellaneous	4,993.30	3,420,962.55
Park Facilities Assets (Less Depreciation): Note 1 Improvements to Land and Buildings in Zoological Park Equipment and Miscellaneous Items  Prepaid Insurance National Collection of Heads and Horns, Art Gallery, Library and Sundry Items Collections of Living Animals	\$ 63,337.11 28,550.51	91,887.62 3,459.67 1.00 1.00 \$3,793,707.91
LIABILITIES		
Accounts Payable		\$ 10,272.08
Accrued Salaries		64.95
Reserve for Educational and Other Purposes		31,987.15
Fund Reserves:		
General and Other Invested Funds	\$3,401,590.66	
Park Facilities Operating Fund—Note 1	187,413.60	
Special and Custodian Funds-Note 2	162,379.47	3,751,383.73
		A1 701 707 01
		\$3,793,707.91

- Notes: 1. Park Facilities Assets are subject to an agreement with the City of New York, and the net income from Park Facilities Operations may be used only for the purchase of animals and the improvement of Zoological Park.
  - 2. The assets and liabilities of the Pension Fund are not included in this balance sheet.

# GENERAL AND OTHER INVESTED FUND RESERVES

# As at December 31, 1945

General Invested Fund Reserves:	
General Fund	\$ 573,191.59
Anna M. Harkness Fund	997,261.46
Rockefeller Fund	945,431.62
Sage Fund	618,507.25
George F. Baker Fund	102,257.05
Jacob H. Schiff Fund	99,887.12
Florence Lydig Sturgis Fund	18,442.62
Total General Invested Fund Reserves	\$3,354,978.71
Other Invested Fund Reserves:	
	3,640.30
Stokes Bird Fund	1,689.12
Grant Fund for the Protection of Wild Life 2.	3,282.53
Total Other Invested Fund Reserves	46,611.95
	\$3,401,590.66

#### GENERAL FUND

# For the Year Ended December 31, 1945

<del></del>		
Balance December 31, 1944		\$551,068.06
Add:		
Contributions:		
William P. Philips	\$5,000.00	
Keith Spalding	5,000.00	
Moss Estate	1,875.00	
Estate of Murray Scoville	1,211.48	
James H. Hyde	1,000.00	
E. Stuart Peck	1,000.00	
Merrill, Lynch, Pierce, Fenner & Beane	500.00	
Frederick H. Warner	10.00	
Life Memberships	4,700.00	
Profit on sales and redemptions of investments	1,437.12	
Income from Stokes Bird Fund	182.29	
Refund of Insurance deposit premium for year ended		
July 1, 1944	256.01	
Balance from General Income Account	369.68	\$ 22,541.58
-		
Deduct:		
Adjustment in Book Value of certain investments		\$ 418.05
Net Addition_to Fund		\$ 22,123.53
Balance—December 31, 1945		\$573,191.59
Jaiance—December 71, 1777		477 3,171.77

# SPECIAL AND CUSTODIAN FUND RESERVES

#### As at December 31, 1945

William E. Damon Fund	\$ 11,321.72
Animal Account	61,777.43
Park Improvement Account	19,729.93
Conservation Account	24,272.72
Jackson Hole Wildlife Park and Conservation Project	24,137.33
Special Projects Account	13,627.50
DeForest Grant Scientific Research Fund	4,623.85
Revolving Publications Account	2,342.91
Improvement and Repair Account	546.08

\$162,379.47

# DONATIONS RECEIVED FOR OTHER THAN THE GENERAL FUND

#### For the Year Ended December 31, 1945

Jackson Hole Wildlife Park and Conservation Project:	
Laurance S. Rockefeller	\$24,204.10
Special Projects Account:	
J. Watson Webb	1,000.00
Mrs. Ethel R. Thayer	1,000.00
Lt. Colonel John H. Phipps	500.00
Herbert F. Schwartz	500.00
Childs Frick	500.00
John Schiff	200.00
Herbert L. Satterlee	100.00
David McAlpin	100.00
H. B. Harris	50.00
Richard W. Foster	50.00
J. W. H. Hamilton	10.00
Wm. Church Osborn	10.00
Other Donations (4)	26.50
Conservation Account:	
Childs Frick	5,000.00
Anna M. Fuller Fund	1,250.00

# GENERAL INCOME ACCOUNT

# For the Year Ended December 31, 1945

Income:		
Income from Investments—General Invested Funds		\$164,014.88
Annual Dues		13,556.50
Sales of Publications		2,575.01
Royalties from Motion Picture Film		1,658.73
Miscellaneous		159.21
		A101 064 22
		\$181,964.33
Expenses:		
► Actuarial Fee	\$ 394.36	
Annual Report	1,152.18	
Aquarium Research	2,369.67	
►Audit Fees	2,250.00	
Auxiliary Pensions	4,773.44	
Custodian Fees	1,885.00	
Donations	422.40	
Educational Activities	8,380.79	
Executive Office	13,856.01	
Insurance	3,462.17	
Legal Fees	2,156.93	
Library	1,001.92	
Membership Department Expense	16,738.15	
Park Salaries—Administration	5,865.00	
►Pension Fund—Four percent on Salaries of Members	12,681.89	
Photography—Salaries and Supplies	4,578.09	
Publication Expense	19,782.24	
Reception Expense	588.02	
Traveling Expense	495.15	
Tropical Research	13,866.78	
Contingencies	119.69	\$116,819.88
Contingencies		\$110,012.00
Park Maintenance Expenditures for the Year 1945 Less—Amount provided by New York City for park	\$437,221.95	
maintenance expenditures for the calendar year 1945	372,447.18	
Park Maintenance Expenditures provided by the		
New York Zoological Society		64 <b>,</b> 77 <b>4.</b> 77
Balance to General Fund		369.68
		\$181,964.33

#### PARK FACILITIES BALANCE SHEET

## December 31, 1945

A	S	S	E	T	S

A33L13		
Cash:	\$	1,500.00
Accounts Receivable		304.20
Inventories		18,736.89
Park Facilities Assets (Less Depreciation) Note 1		91,887.62
Prepaid Insurance		1,346.99
Due from Society		73,919.04
	\$1	87,694.74
LIABILITIES		
Accounts Payable	\$	216.19 64.95
Park Facilities Operating Fund—Note 1	1	87,413.60
	1	87,694.74
	=	

Note: 1. Park Facilities Assets are subject to an agreement with the City of New York, and the net income from Park Facilities Operations may be used only for the purchase of animals and the improvement of Zoological Park.

#### PARK FACILITIES

# STATEMENT OF INCOME AND EXPENSE AND OPERATING FUND

# For the Year Ended December 31, 1945

Receipts from Sales at Stands, Restaurants, etc., and from Services  Cash Discounts Earned		\$463,205.49 1,745.41
		\$464,950.90
Less: Cost of Merchandise sold Salaries and Commissions Depreciation Other Operating and General Expenses	\$159,814.13 158,802.91 15,993.95 43,695.78	378,306.77
Net Income for year from Sales at Stands, Restaurants, etc., and from Services—See Note Balance of Park Facilities Operating Fund—December 31, 1944		\$ 86,644.13 150,769.47
Deduct: Appropriation for Park Improvements		\$237,413.60
Balance of Park Facilities Operating Fund—December 31,		\$187,413.60

Note: Park Facilities Assets are subject to an agreement with the City of New York, and the net income from Park Facilities Operations may be used only for the purchase of animals and the improvement of Zoological Park.

# THE PENSION FUND

# Founded by Andrew Carnegie

# Statement of Operations for the Year Ended December 31, 1945

Balance as at December 31, 1944: Investments		+6.60.660.10	
Accrued Interest Purchased	\$568,550.40 37.50 20,029.80		
Less—Account Payable		\$588,617.70 2.52	
		\$588,615.18	
Receipts:			
Income from Investments:			
Interest	\$ 10,645.83		
Dividends	10,832.02		
Contributions by New York Zoological Society Employees (Three per cent of Employee Salaries)	9,374.35		
Contributions by New York Zoological Society (Four	2,3/4.37		
per cent of Employee Salaries)	12,499.15		
Redeposit of Withdrawals by Employees returned from	,.,,,,		
the Armed Forces, contributions by such employees			
for the period of their absence and appropriate con-			
tributions by the Society in respect thereof	4,134.67	47,486.02	
		A (2 ( 101 20	
Expenditures:		\$636,101.20	
Refunds on Account of Resignations	\$ 4,099.62		
Pension Disbursements	31,250.52		
Death Benefit Disbursements	991.44		
	\$ 36,341.58		
Loss (Net) on Sale and Redemptions of Investments	7,930.30		
Adjustment in Book Value of Certain Investments	285.00	44,556.88	
P.1 21 1045.			
Balance as at December 31, 1945: Investments (Quoted market or redemption value, \$617,-			
594.75)	\$582,807.63		
Uninvested Balance	8,736.69		
		\$591,544.32	

BARROW, WADE, GUTHRIE & CO.
ACCOUNTANTS AND AUDITORS
120 Broadway
New York 5, N. Y.

#### ACCOUNTANTS' REPORT

THE BOARD OF TRUSTEES, New York Zoological Society, New York, N. Y.

We have examined the balance sheet of the New York Zoological Society as at December 31, 1945, and statements of the transactions of the various funds of the Society and of the Pension Fund for the year then ended, have reviewed the system of internal control and the accounting procedures of the Society and, without making a detailed audit of the transactions, have examined or tested accounting records of the Society and the Pension Fund and other supporting evidence, by methods and to the extent we deemed appropriate. Our examination was made in accordance with generally accepted auditing standards applicable in the circumstances and included all procedures which we considered necessary.

We made a test check of the subscriptions, donations and dues reported as received and of the income from investments and found such items to be properly accounted for. We compared schedules, prepared by the custodians, of securities held by them at December 31, 1945, for the account of the Society with the securities recorded in the funds of the Society at that date and found them to be in agreement. Bank balances at December 31, 1945, were confirmed direct to us by the depositaries and were reconciled with the respective cash balances recorded in the accounts as at that date. We examined approved vouchers and paid checks for a number of representative expenditures.

Park Facilities Assets are carried in the accounts at net depreciated book amounts as at December 31, 1940, plus subsequent additions, at cost, less retirements. Provision for depreciation from January 1, 1941, to December 31, 1945, has been computed on the resulting book balances.

In our opinion, subject to the comments contained in the previous paragraphs, the accompanying balance sheet and statements of transactions of the various funds of the Society and of the Pension Fund present fairly the financial position of the Society at December 31, 1945, on the basis stated therein, and the changes in the funds of the Society and in the Pension Fund for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Barrow, Wade, Guthrie & Co.

New York, N. Y. March 25, 1946.

# REPORT OF THE AUDITING COMMITTEE OF THE NEW YORK ZOOLOGICAL SOCIETY

To the President and Board of Trustees of the New York Zoological Society

Dear Sirs:

We have examined the reports of Barrow, Wade, Guthrie & Co. on their examination of the accounts of the New York Zoological Society, the Permanent Wild Life Protection Fund and the Pension Fund of the Society for the year ended December 31, 1945, and herewith submit the same to you as a complete and satisfactory audit of said accounts, including the General and Other Invested Fund Reserves, Special and Custodian Fund Reserves, General Income Account, Pension Fund Account and the Facilities Account. It appears that all expenditures and receipts of the various accounts are fully set forth in these reports, that the cash on hand and in the various depositaries has been confirmed and found correct, and that all securities in which the funds of the Society are invested have been satisfactorily accounted for.

Respectfully submitted,
George C. Clark, Chairman
J. Watson Webb
Wm. DeForest Manice

May 14, 1946

# SUMMARY OF EXPENDITURES, 1896 TO 1945, NEW YORK ZOOLOGICAL SOCIETY AND THE CITY OF NEW YORK, ON ACCOUNT OF THE DEVELOPMENT AND MAINTENANCE OF THE ZOOLOGICAL PARK AND THE AQUARIUM, INCLUDING THE PURCHASE OF COLLECTIONS AND ALSO FOR THE SCIENTIFIC AND GENERAL PURPOSES OF THIS SOCIETY.

	EXPENDED BY THE CITY OF NEW YORK FROM GATE RECEIPTS					EXPENDED BY THE NEW YORK ZOOLOGICAL SOCIETY									
Year	Zoological Park Maintenance	Aquarium Maintenance	Bond Issues a/c—Park and Aquarium	Construction and Repairs	Purchase of Anunals	Zoological Park Development	Aquarium Improvements	Zoological Park Maintenance	Aquarium Maintenance	Purchase of Animals	Aquarium Specimens	Heads and Horns Collection	Pension Fund Contribution	Library and Paintings	Scientific and General Purposes
1896 1897 1898 1899 1900	\$ 30,000.00		\$125,000.00	113411111111111111111111111111111111111	\$ 2,470.88	\$ 4,213.63 6,424.61 23,597.80 145,495.80 34,626.24	# 1	\$ 1,292.16 7,038.61 6,189.33		\$ 8,540.72 3,784.32				\$ 102.76 \$8.13	\$ 2,903.74 4,339.20 3,476.02 5,601.78
1901 1902 1903 1904 1905	65,000.00 85,000.00 104,965.00 104,965.00 134,965.00	\$ 5,959.97 46,453.68 46,439.72 44,968.50	300,000.00 250,000.00 280,000.00 315,000.00 275,000.00		2,998.80 4,256.50 5,912.95 5,421.90 6,849.00	18,348.61 5,908.69 1,038.20 1,013.87 144.00	60 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3,714.37 2,757.57 1,894.37		11,652.24 20,983.07 20,361.62 14,299.61 20,643.40			000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	462.20 224.73 456.03 887.16 418.10	7,597,16 11,068.69 13,608.10 15,072.84 18,773.90
1906 1907 1908 1909 1910	144,965.00 141,558.75 154,627.00 162,325.00 167,632.00	44,987.71 44,183.87 44,157.27 45,971.44 45,974.86	250,000.00 100,000.00 65,000.00 10,000.00 89,500.00		8,132.35 8,248.65 9,446.40 9,992.75 9,909.90	778.48 370.72 232.27 2,860.92 5,918.35				14,907.36 10,606.03 4,231.61 9,734.43 4,339.25	\$ 973.90	\$ 892.71 735.77 7,340.82 2,036.39		319.16 644.05 1,313.87 609.56 1,021.87	17,961.67 15,999.68 14,693.92 17,168.95 20,627.77
1911 1912 1913 1914 1915	174,632.00 182,365.00 191,925.00 200,000.00 200,000.00	47,560.21 46,597.08 47,335.62 46,995.53 46,991.66	29,100.00	\$ 9,237.81 9,175.86	11,611.15 11,838.40 12,404.25 3,831.15	1,155.00 40.00 218.45 2,175.13 887.88				6,659.89 22,750.18 10,665.57 22,590.44 13,629.41	1,191.80 1,350.03 1,850.25 1,792.99 1,466.64	1,615.38 556.94 486.00 338.73 1,024.91	\$3,333.33 8,000.00	1,221.26 1,031.55 732.97 3,541.15 4,181.24	23,409.39 32,109.01 32,543.88 28,246.42 31,398.08
1916 1917 1918 1919 1920	197,074.3\$ 199,560.00 207,586.00 190,000.00 250,098.27	46,996.43 46,903.61 48,630.71 45,000.00 53,971.48	5,000.00	9,599.81 3,488.31 2,642.70 4,917.84 17,438.28	7,118.90	425.30 1,450.05 48.12 5,007.00	\$ 3,450.00 4,095.03	11,537.79 1,580.00 19,924.00 5,141.92	\$ 93.61 407.07	13,511.12 10,175.70 8,425.92 13,345.59 32,761.08	2,193.57 1,637.15 960.19 1,028.05 1,654.02	1,031.47 18.12 18.61 88.27 263.86	8,000.00 8,000.00 8,000.00 8,000.00 8,000.00	1,555.12 2,869.20 3,559.85 1,442.07 2,517.64	38,339.99 44,262.48 34,125.49 45,599.71 51,018.20
1921 1922 1923 1924 1925	276,951.01 264,618.05 262,724.50 262,471.01 262,808.69	65,203.12 63,341.26 57,166.63 57,319.20 58,324.89	7,970.00 85,000.00	25,463.77 17,060.00 18,388.20 16,806.00 19,974.05	•	88,734.92 50,888.65 5,000.00	\$3,635.02 16,153.03 28,233.45	6,068.17 10,074.88 19,019.09 28,956.34 38,793.01	976.47 3,326.28 3,319.44 8,097.14 4,380.45	27,442.59 43,047.41 24,456.20 11,560.62 20,843.01	2,165.05 3,057.91 1,432.89 2,013.88 2,609.55	2,661.67 7,191.93 1,550.69 942.34 667.78	8,000.00 8,000.00 8,000.00 8,000.00 8,000.00	4,698.24 1,765.78 3,391.96 1,938.77 1,174.24	55,684.15 58,797.69 58,404.21 76,559.41 242,753.89
1926 1927 1928 1929 1930	273,815.12 276,855.19 319,380.50 338,359.00 350,170.92	62,266.20 65,216.89 88,109.12 71,229.35 81,343.46	1,500.00	20,102.90 18,960.48 18,106.25 21,957.80 20,834.91		2,480.06 13,095.54 2,500.89	1,395.00 984.85 375.00	45,467.10 61,968.22 52,676.35 59,673.38 65,600.39	7,261.21 11,656.97 10,776.84 13,670.81 16,966.30	23,460.04 27,545.92 21,001.88 23,783.69 17,492.92	2,847.35 2,861.55 2,912.97 3,572.14 1,355.56	306.32 135.00 107.89 669.48 639.04	8,000.00 8,000.00 8,000.00 8,000.00 10,000.00	\$62.40 2,477.37 1,168.15 4,029.63 2,726.37	87,915.27 82,807.54 88,794.37 122,774.78 134,278.88
1931 1932 1933 1934 1935	349,344.95 337,490.01 268,633.38 257,423.08 265,630.94	76,408.08 76,071.24 67,814.24 63,806.61 68.203.46	5,422.63	14,890.58 16,710.25 13,961.02 11,025.88 11,596.51		5,131.68 1,852.40 1,037.19		65,601.03 61,127.48 62,996.66 66,502.59 60,237.94	19,541.40 19,155.01 18,120.73 18,229.23 18,832.57	24,439.56 20,039.28 7,644.14 9,267.86 16,530.28	3,650.58 1,934.84 2,199.91 1,641.06 2,031.56	1,707.40 335.00 118.65 162.86 275.21	10,000.00 10,000.00 10,000.00 10,000.00 10,000.00	6,713.26 3,607.97 3,384.38 606.53 383.07	128,871.12 97,303.32 86,757.06 81,711.26 82,929.14
1936 1937 1938 1939 1940	265,057.37 267,192.29 282,759.71 283,280.81 282,761.15	68,760.95 73,807.74 79,225.20 79,164.23 78,905.12		13,496.42 11,527.85 10,235.70 11,019.23 8,392.10		100.00	***************************************	57,270.94 56,262.45 57,043.10 51,050.57 57,513.25	17,886.45 16,408.55 13,408.11 12,941.70 12,022.76	20,918.46 22,417.08 15,351.51 23,012.27 39,627.52	2,867.50 2,799.17 558.82 403.75 577.10	178.43 24.79 175.00	10,000.00 19,047.09 20,455.95 20,475.95 20,069.17	470.18 1,415.39 431.41 345.30 533.85	79,835.73 92,609.40 93,543.59 92,576.90 98,501.09
1941 1942 1943 1944 1945	286,284.59 258,656.76 305,203.23 315,787.82 334,288.37	62,052.95 50,931.00 33,324.31 33,790.82 38,158.81		15,947.33 10,169.20 11,904.80 17,316.09 20,745.35		187,408.02 43,088.43 38,860.03 32,101.60 58,943.48	3,500.00 23,420.00 225.52	84,254.19 49,226.40 51,833.51 50,691.82 58,846.39	9,466.70 4,807.79 5,154.21 3,717.28 5,928.38	\$7,236.77 8,369.36 2,319.36 \$,106.59 11,466.19	574.40 553.52 336.19 96.48 460.34		18,206.34 10,762.57 9.832 99 10,234.06 12,681.89	1,316.89 401.65 574.01 405.52 1,001.92	100,846.55 144,765.21 73,192.91 88,594.55 112,541.29
Add Premium on Bonds, less  Balances Reverting to the City  Expended in Connection with Preparation and Publication of "A Monograph of the Pheasants"—Gift of Col. Anthony R. Kuser  Expended in Connection with Galapagos Expedition—Gift of Harrison Williams  Transfer by the Society of Endowment for Pension Fund—July 1, 1941  239,523.45															
orals	10,577,191.82	2,468,024.23	2,681,477.52	453,093.28	120,443.93	895,945.88	135,466.90	1,339,825.37	276,553.46	822,979.07	61,612.66	34,297.46	574,622.78	74,723.91	3,286,065.38
	1 240 000 00	15,726,693.57		573.5	37.21				7,502,	092.87	Total Managines T	he City has univers	visted an aggregate	of \$80,000.00 for	these purposes.



## THE NEW YORK ZOOLOGICAL SOCIETY

I NCORPORATION of the New York Zoological Society by the State of New York was accomplished under Chapter 435 of the Laws of 1895 and the basic purposes of the Society were embodied in Section 2:

Said corporation shall have power to establish, maintain and control zoological parks, gardens, or other collections for the promotion of zoology and kindred subjects, and for the instruction and recreation of the people. Said corporation may collect, hold, and expend funds for zoological research and publication, for the protection of wild animal life, and for kindred purposes, and may promote, form, and co-operate with other associations with similar purposes, and may purchase, sell, or exchange animals, plants, and specimens appropriate to the objects for which it was created.

Subsequently, at a special meeting of the Commissioners of the Sinking Fund, City of New York, held on March 24, 1897, a resolution was passed allotting South Bronx Park for the use of the New York Zoological Society and establishing the terms of a management agreement under which the Society has operated since that date, with only minor modifications.

The resolution of March 24, 1897, and the supplemental agreement of January 24, 1942, provided that the Society should furnish the original equipment of buildings and animals, that it should raise \$250,000 by subscription within three years of the date of starting work on the improvement of the grounds, that the Society should have the right to establish an endowment fund to be used solely for the general uses and purposes of the Society unless otherwise specified by the donors, that the City of New York should provide funds for the maintenance and care of the Zoological Park and for the maintenance of the animal collections, that the Zoological Park should be open to the public free at least four days a week, that the Society may expend the net proceeds of facilities only for the purchase of animals and the improvement of the Zoological Park and that the Society should have the right to make and control all appointments of employees and to fix salaries and make promotions.

# NEW YORK ZOOLOGICAL SOCIETY

Organized 1895

	PRESIDENTS									
I.	Andrew H. Green	1895	to	1897						
	Levi P. Morton	1897	to	1909						
	Henry Fairfield Osborn	1909	to	1925						
	Madison Grant	1925	to	1937						
	W. Redmond Cross	1937	to	1940						
VI.	Fairfield Osborn	1940								
	FIRST VICE-PRESIDENTS									
	J. Hampton Robb	1895								
	HENRY FAIRFIELD OSBORN	1897								
	SAMUEL THORNE									
	Madison Grant	1916								
	FRANK K. STURGIS	1925								
	W. REDMOND CROSS	1932 1937								
	ALFRED ELY	1937	το	1939						
V 111.		1939								
SECOND VICE-PRESIDENTS										
	CHARLES E. WHITEHEAD	1895								
	JOHN L. CADWALADER	1902								
	MADISON GRANT									
	FRANK K. STURGIS									
	Henry D. Whiton	1925								
	KERMIT ROOSEVELT	1930								
VII.	ALFRED ELY	1937	to	1939						
A111.		1939								
,	TREASURERS									
	L. V. F. RANDOLPH									
11.	CHARLES T. BARNEY	1901								
	PERCY RIVINGTON PYNE		to	1922						
IV.	Cornelius R. Agnew	1922								
,	SECRETARIES									
	Madison Grant									
	WILLIAM WHITE NILES									
	FAIRFIELD OSBORN	1935	to	1940						
1 4.	HAROLD J. O'CONNELL	1941								
CHAIRMEN, EXECUTIVE COMMITTEE										
	CHARLES E. WHITEHEAD									
	HENRY FAIRFIELD OSBORN									
	CHARLES T. BARNEY									
	HENRY FAIRFIELD OSBORN	1907								
	MADISON GRANT									
	W. REDMOND CROSS									
	Laurance S. Rockefeller	1940 1943								
	LAURANCE S. ROCKFELLER	1945	το	174)						
IA.		174)								
_	DIRECTORS									
Į.	WILLIAM T. HORNADAY, Zoological Park	1896	to	1926						
II.	CHARLES H. TOWNSEND, New York Aquarium	1902	to	1937						
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STEFFANSON, MRS. H. B. \*STEIN, MRS. ALEXIS W. STEIN, DR. ARTHUR STEINER, E. W. STEINITZ, CHARLES STEPHENS, RODERICK STERLING, MRS. ROBERT D. STERN, MRS. ALBERT Stevens, Mrs. John A. Stevens, Mrs. Mary STEWART, ALEXANDER M. STEWART, MISS G. MARIETA STEWART, PERCY M. STEWART, WILLIAM A. W. STIMSON, A. C. STOLLER, PFC. LEONARD STOUT, ANDREW V. STRAUB, ANTHONY F. STRAUS, MRS. NATHAN STRECK, DR. CHARLES STRINGFELLOW, MISS ETHEL GREY STRITTER, MISS E. ELEANOR STRONG, MRS. CHARLES H. STROOCK, JOSEPH STUART, MRS. DAVID STUMPP, MRS. EDWIN A. STURGEON, LEO D. SULLIVAN, THOMAS SULZBERGER, ARTHUR HAYS SULZBERGER, MRS. ARTHUR HAYS SULZBERGER, DR. CARL FULTON SUNDERLAND, EDWIN S. S. SUYDAM, MRS. LAMBERT SVENSON, HENRY K. SWAINE, ROBERT T. SWAN, JOSEPH R. SWANSON, DR. FRITZ J. SWENSON, MISS THUSNELDA SWIFT, MRS. EDWARD F. SWIFT, HAROLD H. SWOPE, GERARD Swope, John Symington, Charles J. TADDIKEN, MISS MELITA \*TAFT, HENRY W. TAFT, WALBRIDGE S. TALBOT, J. ALDEN TALBOTT, H. E. TARRANT, JOHN E. TAYLOR, HOWARD LAWRENCE TAYLOR, JAMES B. TAYLOR, OWEN K. TAYLOR, MRS. ROBERT COLEMAN TEASDALE, MISS THELMA TENNEY, DANIEL G. TERRY, RODERICK, JR. TERRY, MRS. WILLIAM C. THAYER, MRS. ROBERT H.

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<sup>\*</sup> Deceased

WANGER, HENRY F. WARBURG, GERALD F. WARBURG, MRS. PAUL M. WARD, ARTEMAS, JR. WARD, E. S. WARD, DR. WILBUR WARD, WILLIAM F. WARDROP, MISS NELL WARDWELL, ALLEN WARNER, FREDERICK H. WARNSHUIS, MRS. A. L. WATERBURY, MISS FLORENCE WATSON, MISS JANE WATSON, MISS JANE
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WEAVER, WARREN
WEBB, VANDERBILT
WEBB, MRS. VANDERBILT WEBER, JULIUS WEBER, MRS. ORLANDO F. WEED, J. SPENCER WEEMS, F. C. Weil, LEONARD D. Weinkauf, Mrs. H. Weisbuch, M. Weisfeldt, M. J. WEISL, EDWIN L., JR. WELCH, E. SOHIER WELCH, FRANCIS C. WELCH, HENRY K. W. WELLDON, SAMUEL A. Wells, Fay Gillis Wells, Linton WETMORE, MISS EDITH WHITE, HAROLD T. WHITE, J. W. WHITEFIELD, BERNARD WHITEHOUSE, SHELDON WHITEHOUSE, WILLIAM F. WHITFIELD, W. L. WHITIN, MISS LOUISE WHITLOCK, BACHE McM. WHITMAN, WILLIAM, JR. WHITNEY, MRS. HOWARD F.

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\* Deceased.

† The qualifications for this class rest solely upon scientific achievement.

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# SUMMARY OF MEMBERSHIP

Benefactors	6
Founders in Perpetuity	11
Founders	7
Associate Founders	8
Patrons	3 1
Life Members	305
Annual Members	1,343
Honorary Members	4
Fellows	79
Research Associates	3
Corresponding Members	10
-	
(Total)	1,807

Corrected to January 1, 1946

## BY-LAWS

#### OF THE

# NEW YORK ZOOLOGICAL SOCIETY

#### ARTICLE I

#### MEMBERS

SECTION 1. The present members and such others as hereafter shall become members in accordance with these by-laws shall be the members of this Society.

- SEC. 2. Annual members shall be elected by the Board or Executive Committee and, upon election, shall qualify for such membership by payment of dues for the first year.
- SEC. 3. Annual dues shall be \$10 payable in advance on the first day of January in each year. Any person who shall fail to qualify within three months after his election shall be deemed to have declined his election.
- SEC. 4. Any member who shall fail to pay his annual dues within three months after notice that they have become due and demand therefor, shall cease to be a member of the Society. He may, however, be reinstated by the Board or Executive Committee for good cause shown.
- SEC. 5. Any person who shall have donated to the Society, in the aggregate, cash or the equivalent in value of any of the following amounts shall be eligible for election, by the Board or Executive Committee, to the class of membership appearing opposite such amount:

\$ 200.00 Life Membership

\$1,000.00 Patron

\$2,500.00 Associate Founder

\$ 5,000.00 Founder

\$10,000.00 Founder in Perpetuity

\$25,000.00 Benefactor

An annual member who has paid dues for five consecutive years may thereafter, at any time, upon payment of the difference between the aggregate dues already paid and \$200, but in no case less than \$100, be elected a Life Member. Upon the death of a trustee, his widow shall be eligible for election, by the Board or Executive Committee, to Life Membership.

SEC. 6. The Board or Executive Committee may elect to membership in the following classes persons who, in their judgment, have achieved the qualifications hereinafter specified:

Fellows:-Persons of marked scientific achievement.

Honorary Members:—Persons who have rendered distinguished services in the science of zoology or natural history.

Corresponding Members:—Persons who have rendered marked services to the Society through correspondence.

- SEC. 7. All but annual members shall be exempt from payment of annual dues.
- SEC. 8. Benefactors and Founders in Perpetuity shall have the power to designate their respective successors, who shall thereupon be entitled to all the rights and privileges of their predecessors, including the right in turn to designate their successors. Such designation shall be in writing indorsed or attached to the certificate of membership or by last will and testament.

## ARTICLE II

## PRIVILEGES OF MEMBERS

- SEC. 1. Each annual member shall be entitled to a member's ticket, ten tickets of admission to the Zoological Park and Aquarium on pay days, a copy of the annual report, a copy of the official periodical publication of the Society, and shall be entitled also to the privileges of the Library and Administration Building at the Zoological Park.
- SEC. 2. Each Junior Member shall be entitled to a copy of the official publication of the Society, a Junior Membership ticket entitling him to certain privileges in the Park and Aquarium, and shall be entitled also to the privileges of the Library in the Administration Building at the Zoological Park.
- SEC. 3. Life Members shall be entitled to all the privileges of annual members and also to ten additional tickets of admission to the Zoological Park and Aquarium on pay days.
- SEC. 4. Benefactors, Founders in Perpetuity, Founders, Associate Founders and Patrons shall be entitled to all the privileges of Life Members and also to receive the Society's scientific publication "Zoologica."
- SEC. 5. A member's ticket, issued annually, shall admit the member and his immediate family to the Zoological Park and Aquarium on pay days and to lectures and special exhibitions. It may be used by the member's immediate family.
- SEC. 6. Each member, other than a member elected pursuant to Article I, Section 6, shall be entitled to one vote at each meeting of the Society.
- SEC. 7. Any member who shall fail to comply with the provisions of these by-laws may be suspended from the privileges of membership or dropped from the rolls of the Society, by a majority vote of those present at a duly constituted meeting of the Board or Executive Committee.

# ARTICLE III

## MEETINGS OF THE SOCIETY

- SEC. 1. The Annual Meeting of the Society shall be held on the second Tuesday in January in each year, or on such day thereafter and at such time and place as may be designated by the Board or Executive Committee.
- SEC. 2. Special Meetings of the Society may be called upon order of the President or Chairman of the Executive Committee or on the written request of ten Trustees delivered to the Secretary.
- SEC. 3. Notice of each annual or special meeting of the Society, stating the time, place and purpose thereof, shall be mailed, at least ten days before an annual and three days before a special meeting, to each member at his address last recorded with the Secretary.
  - SEC. 4. At all meetings of the Society twenty members shall constitute a quorum.

#### ARTICLE IV

#### BOARD OF TRUSTEES

- SEC. 1. The property, affairs and business of the Society shall be managed and controlled by a Board of Trustees consisting of thirty-six members divided into three equal classes, together with the Mayor and the Commissioner of Parks of the City of New York who shall be members ex officio of the Board. Each class of elected trustees shall hold office for three years and until its successors are elected. The term of office of one class shall expire each year and its successor shall be elected at the annual meeting of the Society.
- SEC. 2. No person shall be eligible for election to the Board unless he shall be either a Benefactor, Founder in Perpetuity, Founder, Associate Founder, Patron or Life Member and, excepting to fill vacancies, unless his name shall have been posted as a candidate by the Nominating Committee or by not less than ten members in writing in a conspicuous place in the office of the Society not less than ten days before the annual meeting.
- SEC. 3. Vacancies in the Board may be filled for the unexpired term by the Board or Executive Committee at any regular or special meeting, by ballot, by a majority vote of the members present; but no person shall be eligible for election to fill a vacancy unless he shall have been nominated at a prior or special meeting of the Board or Executive Committee.
- SEC. 4. The Board shall hold an annual meeting in December in each year, on a date and at a time and place designated by the Board or Executive Committee. Other meetings of the Board may be called upon order of the President or Chairman of the Executive Committee or at the written request of five Trustees delivered to the Secretary. Twelve Trustees shall constitute a quorum.
- SEC. 5. Notice of each meeting of the Board shall be mailed to each Trustee at least seven days before the annual meeting and at least three days before any other meeting.
- SEC. 6. A Trustee who shall fail to attend three consecutive meetings of the Board, without being excused by the Board, shall be deemed to have resigned as a Trustee.
- Sec. 7. The Board at its annual meeting in each year shall appoint four standing committees—an Executive Committee, a Finance Committee, an Auditing Committee and a Conservation Committee—each of which shall serve for one year, or until its successors are appointed. The Board or Executive Committee may appoint such other Committees and delegate to them such powers as they may deem advisable or necessary. The President shall designate the Chairman of each committee.

## ARTICLE V

#### **OFFICERS**

- SEC. 1. The Board of Trustees at its Annual Meeting in each year shall elect a President, a First Vice President, a Second Vice President, a Treasurer and a Secretary from among the Trustees. The said officers shall hold office respectively for the ensuing year and until their successors are elected. Any vacancy for an unexpired term may be filled by the Board or Executive Committee.
- SEC. 2. The President shall preside at all meetings of the Society and of the Board, exercise general supervision of the affairs of the Society, from time to time call attention of the Board to such subjects as in his opinion require consideration and shall exercise the usual functions pertaining to his office. He shall be a member ex officio of all standing committees.
- SEC. 3. The Vice Presidents, in order of seniority, in case of death, absence, resignation or disability of the President shall perform his duties and exercise his powers.

- SEC. 4. The Treasurer shall collect, receive and have custody of the funds and securities of the Society subject to the order of the Board or Executive Committee and shall keep all funds of the Society on deposit with a bank or trust company approved by the Board or Executive Committee. He shall pay all bills and appropriations as ordered by the Board or Executive Committee, shall keep regular and correct accounts and shall submit reports to the Society at its Annual Meeting, to the Board at all Regular Meetings and to the Executive Committee at each meeting. He shall be a member ex officio of the Executive Committee. The books of account of the Society shall be open at all times to the inspection of the Trustees and the Executive, Finance and Auditing Committees. The fiscal year of the Society shall be the calendar year.
- Sec. 5. The Secretary, unless otherwise ordered by the Board or Executive Committee, shall cause notices to be issued of all meetings of the Society, the Board and the Executive Committee, attend all such meetings and keep the minutes thereof. Together with the President or a Vice President he shall execute all contracts and instruments on behalf of the Society, and shall affix the seal of the Society when authorized to do so by the Board or Executive Committee. He shall conduct the correspondence of the Society, have custody of the seal, archives and books, other than books of account, and perform the usual duties pertaining to his office and such other duties as the Board or Executive Committee may direct. He shall be a member ex officio of the Executive Committee.
- Sec. 6. The Board or Executive Committee may appoint an Assistant Treasurer or an Assistant Secretary and such other officers or officials as may be deemed necessary to serve at the pleasure of the Board or Executive Committee, and may define their respective duties. A bank or trust company organized under the laws of New York and having its principal place of business in New York City may be appointed Assistant Treasurer and may be made depositary of the funds and custodian of the securities and investments of the Society upon such terms and with such powers as may be delegated to it by the Board or Executive Committee.

#### ARTICLE VI

#### COMMITTEES

SEC. 1. Executive Committee-This Committee shall consist of eight Trustees, together with the President, Treasurer and Secretary as members ex officio. Vacancies shall be filled by the Board or by the Committee itself.

In the interim between meetings of the Board, the Executive Committee shall manage and control the property, business and affairs of the Society and exercise all the powers of the Board to the extent not delegated to other Committees or contrary to law. It

shall report at each regular meeting of the Board.

Regular meetings of the Executive Committee shall be held on the third Tuesday in each month, unless otherwise ordered by the Chairman, at such time and place as shall be fixed by the Chairman. Special meetings may be called upon order of the Chairman or at the written request of three members of the Committee delivered to the Secretary. Four members including the Chairman shall constitute a quorum.

The Executive Committee shall appoint each year a Nominating Committee which

shall hold office for one year and until its successors are appointed.

The Executive Committee shall have power to fix the salaries of the officers and employees of the Society.

SEC. 2. Finance Committee-This Committee shall consist of not less than three Trustees and the Treasurer as member ex officio. Vacancies therein shall be filled by the Board or Executive Committee.

The Finance Committee shall have power to sell securities and other investments belonging to the Society and to reinvest proceeds of sale and invest any other funds of the Society available for investment, in such securities or investments as it may deem wise. It shall report quarterly to the Executive Committee all purchases and sales of securities and investments made by it. It may submit to the Board or Executive Committee its recommendations with regard to sales or purchases of securities or other

investments.

Notwithstanding the power hereby conferred, the Board or Executive Committee may, at any time, direct the sale of any securities and investments held by the Society, or direct the reinvestment of any proceeds of sale or investment of other funds of the

Society available for investment in such securities or investments as it may specify.

All transfers and assignments of the securities registered or standing in the name of the Society shall be executed under the seal of the Society by the President or a Vice

President, together with the Secretary or Treasurer.

The report of the Chairman of the Finance Committee shall be sufficient authority to the Chairman of the Executive Committee for approving drafts for purchases of securities or investments.

SEC. 3. Auditing Committee—This Committee shall consist of three members, other than members elected pursuant to Article I, Section 6, together with the President and the Secretary as members ex officio. Vacancies therein shall be filled by the Board or Executive Committee.

The Auditing Committee shall cause the accounts of the Treasurer and any other accounts of the Society to be audited and certified annually, or as often as it deems advisable, by a certified public accountant of its selection and shall report to the Board at its annual meeting. It shall cause the annual statement of the Treasurer to be audited and certified by such certified public accountant before it is submitted to the Board, and shall annually, or as often as it deems advisable, examine and verify the securities and other investments belonging to the Society.

- SEC. 4. Conservation Committee—This Committee shall consist of three or more Trustees, together with the President as member ex officio. It shall have charge of the wild life conservation activities of the Society and the disbursement of such funds as shall be appropriated to its use by the Board or Executive Committee. Vacancies therein shall be filled by the Board or Executive Committee.
- SEC. 5. Nominating Committee—This Committee shall be composed of three members other than Trustees and members elected pursuant to Article I, Section 6. Vacancies therein shall be filled by the Executive Committee. This Committee shall select twelve candidates, to succeed the outgoing class of Trustees, to be voted upon at the ensuing annual meeting. Such candidates shall be selected from among the Benefactors, Founders in Perpetuity, Founders, Associate Founders, Patrons and Life Members of the Society. The names of such candidates shall be posted in a conspicuous place in the office of the Society at least ten days before the annual meeting.

#### ARTICLE VII

#### AMENDMENTS

SEC. 1. These By-Laws may be amended, either by change or repeal of any provision or the adoption of new provisions, at any meeting of the Board by majority vote of the Trustees present, provided such proposed amendment is set forth in full in the notice of such meeting.























